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Part 2

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 1984

HEARINGS

BEFORE THE

COMMITTEE ON ARMED SERVICES
UNITED STATES SENATE

NINETY-EIGHTH CONGRESS

FIRST SESSION

ON

S. 675

AUTHORIZING APPROPRIATIONS FOR FISCAL YEAR 1984 FOR THE ARMED FORCES FOR PROCUREMENT, FOR RESEARCH, DEVELOPMENT, TEST, AND EVALUATION, AND FOR OPERATION AND MAINTENANCE, TO PRESCRIBE PERSONNEL STRENGTHS FOR SUCH FISCAL YEAR FOR THE ARMED FORCES AND FOR CIVILIAN EMPLOYEES OF THE DEPARTMENT OF DEFENSE, AND FOR OTHER PURPOSES

PART 2
ARMY PROGRAMS
COST GROWTH IN MILITARY PROCUREMENT
AIR FORCE PROGRAMS
NAVY-MARINE CORPS PROGRAMS

FEBRUARY 25, 28 AND MARCH 2, 1983

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DEPARTMENT OF DEFENSE AUTHORIZATIONS FOR APPROPRIATIONS FOR FISCAL YEAR 1984

FRIDAY, FEBRUARY 25, 1983

U.S. SENATE,
COMMITTEE ON ARMED SERVICES,
Washington, D.C.

ARMY PROGRAMS

The committee met in open session, pursuant to notice, at 10:30 a.m., in room 318, Russell Senate Office Building, Senator John Tower, chairman, presiding.

Members present: Senators Tower, Goldwater, Warner, Humphrey, Quayle, Jackson, Exon, Levin, Kennedy, and Bingaman.

Staff present: James F. McGovern, staff director and chief counsel; James G. Roche, minority staff director; Alan R. Yuspeh, general counsel, Paul C. Besozzi, minority counsel; Anthony J. Principi, counsel; Willis D. Smith, deputy staff director and chief scientist for the minority, Brenda K. Hudson, assistant chief clerk; Ann E. Sauer, special assistant; Michael B. Donley, Richard D. Finn, Jr., Frank J. Gaffney, Jr., David S. Lyles, José Martinez, Carl M. Smith, James C. Smith and Joe Mayer, professional staff members, and Jacquie S. O'Grady, staff assistant.

Also present: Dennis P. Sharon, assistant to Senator Goldwater; John Campbell, assistant to Senator Warner; Ron Kelly, assistant to Senator Humphrey; Jim Dykstra, assistant to Senator Cohen, Hank Steenstra, assistant to Senator Quayle; Joe Kruzal and Anne Burt, assistants to Senator Humphrey; Mary Shields and Frank Sullivan, assistants to Senator Stennis; Greg Pallas, assistant to Senator Exon; Peter Lennon, assistant to Senator Levin; Matthew Murray, assistant to Senator Kennedy; Kathleen Callahan and Ed McGaffigan, assistants to Senator Bingaman.

OPENING STATEMENT BY SENATOR JOHN TOWER, CHAIRMAN

Chairman TOWER. The committee will come to order.

Members of the committee, today we begin the first of the service posture hearings. This year we are instituting two added dimensions to these hearings.

First, we have invited, not only the Secretary and military chief of each service, but also key field commanders who will be directly affected by the actions of the Congress on the Defense budget. I expect these commanders to provide candid responses to questions about the effects that our decisions may have on their ability to carry out U.S. commitments at home and abroad.

After all, it is not the professional military who decide what our national security commitments are; rather, it is the professional military who are charged with satisfying commitments imposed upon them by our civilian leadership.

Second, we have invited Budget Committee members to attend these hearings and to participate with us, so they may have the opportunity to hear from those who will be directly affected by Defense budget decisions. This is a unique opportunity for Budget Committee members to get first-hand information on the Defense budget before acting on the First Concurrent Resolution on the budget.

There are many in Congress calling for reductions in the Defense budget because of the political pressures of the moment. These Members seem to have lost sight of the fact that the threat from our potential adversaries has not diminished and is, in fact, growing at a steady pace.

We have heard and will continue to hear numerous proposals to slow down and stretch out procurement programs; to replace sophisticated, expensive systems with cheap substitutes produced in greater quantities; to hold down on pay raises and cost-of-living increases, et cetera. These are certainly not new ideas.

Indeed, it was this same shortsightedness, in my view, that produced the weakened military establishment of the late 1970's—a force that was poorly manned, inadequately trained, and equipped with obsolete equipment that could not be maintained. I, for one, do not want to let our military ever get in that condition again.

It is a pleasure to welcome the Secretary of the Army, Hon. Jack Marsh, back before the committee.

Secretary Marsh is accompanied by General "Shy" Meyer, who is making his final posture hearing appearance before the committee. General Meyer's tour as Army Chief of Staff ends this summer and I, for one, will be sorry to see him go.

General Meyer inherited a "hollow Army"—a term he coined shortly after he assumed his current position in 1979—and he has transformed "hollowness" into very great substance, indeed.

We also have with us two of the Army's major commanders and I look forward to hearing their views on Army issues.

Gen. Don Keith is the Army's top logistician; he transforms ideas into products and products into fighting systems.

Gen. Dick Cavazos is the man responsible for all of the Army's fighting units in the United States—Active and Reserve. For my colleagues who haven't met Dick Cavazos before, let me give you some of his background. He was raised on a ranch in south Texas and has spent most of his military career in command of troops—much of that at Fort Hood, Tex. I don't know of any Army general who has a greater affinity or understanding of the American soldier than Dick Cavazos.

Today's Army is impressive; the people are motivated, well-trained, and new equipment is arriving every day. However, the Army is not without its problems. Foremost among these is how to accommodate new equipment deliveries and how to manage this transition from the old to the more advanced weapons systems.

The Army is on the brink of an unprecedented modernization effort, with its programs to replace nearly every major weapon system in the next few years—the Abrams tank, the Bradley fighting vehicle, the Apache helicopter, the Patriot air defense system and many, many more—the combat power of today's Army will be increased severalfold.

No one should minimize the problems that this modernization brings. In addition to the relatively simple logistics and training problems, the Army is learning that its fighting doctrine will have to change in order to meet what has become a very sophisticated threat, particularly in the last several years, and to take best advantage of the capabilities of new systems now being fielded.

Let me strongly urge my colleagues to read the after-action summary of the last REFORGER exercise where the M1 tank was employed for the first time. The M1 performed superbly, but the most striking conclusion is that the special features of the M1—its survivability, its speed, its quietness, and its ability to shoot on the move—will provide the Army tactical warfighting capabilities even beyond those originally anticipated.

Let me say parenthetically at this point I hope you will read this, it is an assessment of the professionals, rather than drawing all your conclusions on the M1 tank from what you may read in the press or hear from the electronic media, or if you want an objective journalistic treatment, you might read the Economist of London which I think has written a very good one.

Over the last several years we have witnessed a dramatic improvement in the quality of the men and women serving in the Army. Indeed, the quality of today's soldier has never been better. Moreover, recruitment and retention statistics are excellent. But I am concerned with the potential impact of a pay cap.

Our soldiers in many respects endure far greater hardship—even in times of peace with family separations—than our civilian counterparts. I don't want to see our soldiers asked to pay the cost of reduced Defense budgets. Indeed, I trust this committee will not permit this to happen.

Mr. Secretary, Generals Meyer, Keith, and Cavazos, we welcome you. We look forward to your important testimony.

My distinguished colleague, the ranking member, Mr. Jackson, has been detained and is not here. I was going to defer to him for a statement. Perhaps he has vested his proxy in Senator Kennedy and he would like to make an opening comment.

Senator KENNEDY. No, thank you very much, Mr. Chairman. I look forward to the testimony of the witnesses and the opportunity to question them.

Chairman TOWER. Generals, as is the usual procedure, we suggest that you summarize your statements and submit them to be printed in the record in full. Every detail of what you have in your prepared statement will be available in the record.

After each of you has had an opportunity to make a statement, we will then proceed to questions by the committee.

Mr. Secretary, you may proceed as you see fit.

STATEMENT OF HON. JOHN O. MARSH, JR., SECRETARY OF THE ARMY, ACCOMPANIED BY GEN. EDWARD C. MEYER, USA, CHIEF OF STAFF, U.S. ARMY; GEN. RICHARD E. CAVAZOS, USA, COMMANDER, U.S. ARMY FORCES COMMAND; GEN. DONALD R. KEITH, USA, COMMANDER, U.S. ARMY MATERIEL DEVELOPMENT & READINESS COMMAND

Secretary MARSH. Thank you, Mr. Chairman.

As you suggest, I will file my statement and summarize it.

It is a pleasure to be before the committee. We are engaged in a common endeavor to provide for the defense of the United States. The budget and program submission we make is one that arises from necessity—the necessity that is posed by the threat that our country faces at this time in our national history.

Our proposal is a response to that threat and expresses how the Army will meet it. I will say to you that it reflects some $65.3 billion budget requests and, as you know, is the smallest of all the Services at 23.8 percent of the Defense budget. It surprises people to realize that of all three services, the Army has the smallest of all the budget requests.

Two years ago, a decision was made in the Army on the recommendation of the Chief of Staff—and it was one that I certainly approved and concurred in—that we had one of two roads we could travel.

We could travel the road of force expansion, and not address the needs of modernization and filling out the Army which General Meyer had accurately described as a "hollow" Army. On the second road, we could seek to maintain about the same end strength of our force and in that force build readiness, sustainability, modernization and deployability.

That second road is the one we decided to take. We think it has been a wise choice. We also think that the perception the people have of the U.S. Army is that it is a force whose strength and capabilities far exceed its numbers. As you are aware, there is an enormous emphasis in the Army today on the total force concept and the role that the National Guard and Reserve play in terms of national defense.

We have made enormous progress in that regard, and General Cavazos can shed light on that.

As you have observed, this is an era of modernization. Along with that has come certain problems associated with implementing modernization, but this effort is on track. It is being achieved. Modernization has meant that we have to focus on management of our resources and improved cost control. We have sought to do just that and we will develop that later in the testimony, if you so desire.

I will say to you, though, Senator Tower, that there is one area in which there is a very critical need, and the Army does not control the resources necessary to achieve it. I am speaking in terms of strategic deployment. I am speaking in terms of fast sealift. I am speaking in terms of airlift, both intertheater and, very importantly also, in terms of intratheater airlift.

These are two areas in which the Army has a great need and that we would ask you to address.

You should also be aware that in the recent Defense Guidance, you will see a term that appears called "Special Operations Forces". It impacts on all services but has enormous impact on the U.S. Army. This includes Rangers, Special Forces—sometimes called Green Berets—civil affairs units and psychological warfare units.

There is a major Army effort underway in this area. This is a part of the doctrine—which I am sure General Meyer will discuss further—regarding the use of light forces that are being developed as a part of our modernization program.

You have already commented on the Army achievement in personel. Some 86 percent of the young people who joined the Army as of the end of last year were graduates of high school. They are people of enormous ability and talent.

A major program of the U.S. Army has been physical fitness. We believe the readiness of the U.S. Army begins with the physical fitness of every soldier, officer and noncommissioned officer.

The theme of the Army this year emphasizes excellence—excellence in everything we do in order to achieve even greater heights of capability.

As a final note I will remind you that this year is the bicentennial year of the signing of the Treaty of Paris. We are emphasizing this event in the Army because the Treaty of Paris ended the American Revolution—a revolution that was successful in large measure because of the contributions of our Army some 200 years ago. We would urge that the Congress join us in the commemoration of that event because it focuses on the contribution of not only our Army, but also of the Navy, Marine Corps and today, the Air Force.

Finally, this is the last appearance of the Chief of Staff of the Army in the posture hearings. I concur in the comment you made in reference to the contributions he has made to the Army. Many of the things I have mentioned here we have been able to achieve because of the leadership that he has given the Army and those who serve with him. He has enabled these things to come about.

It is a pleasure to be here. I stand ready to take your questions.

[The prepared statement of Secretary Marsh follows:]

PREPARED STATEMENT BY HON. JOHN O. MARSH, JR., SECRETARY OF THE ARMY

THE POSTURE OF THE ARMY

Mr. Chairman, members of the committee. It is a pleasure to again appear before you to discuss our Army and the Army budget request for fiscal year 1984. America can be proud of its land forces, an Army which is capable of defending our national security in this decade of international tensions and uncertainties. I welcome the opportunity to work with this committee to improve the effectiveness of the Army and its readiness and ability to meet the challenges of the present and the future.

I am happy to report that we have sustained during the last twelve months our momentum toward force improvement which I discussed with you last year. Slowly, almost incrementally, we have improved the personnel, readiness, and materiel status of the Army, and its capability to operate across the entire spectrum of possible contingencies. We also have continued our very necessary modernization efforts, which will enable us to deter conflicts or fight effectively—and win—on tomorrow's battlefields. It is of the utmost importance that we maintain this momentum.

Two years ago, the Army was faced with a difficult choice. We could expand our end strength so that military commitments could be met around the globe, but in doing so we would have to accept an Army with less capable equipment in the hands of its soldiers, a slower rate of modernization, and reduced sustainability for combat. Our alternative was to maintain a smaller active force—the minimum essential to meet the commitments although with increased risk—so that we could continue essential modernization, increase readiness, and improve our sustainability. The policy decision was to choose the latter course, and it was a correct decision.

The strength of our Active Component is 780,000 soldiers. The sixteen divisions which constitute our active force—many of which are dependent on Reserve Component units to "round them out"—are barely adequate for today's national security obligations. We have shifted many less time-urgent defense requirements from our Active to our Reserve Components, but have reached a point where this is no longer a viable option. Any reduction in our active duty end strength would have to be in our forward deployed forces. Other nations are generally aware of our strength requirements; such a reduction would be perceived by our friends and potential enemies as a weakening of our land force capability and a diminishing of our international commitments.

A factor which makes our austere Active Army force posture acceptable in terms of Army missions is our continental-based active and reserve land forces. The Army depends upon its sister services to supply strategic mobility assets—both airlift and sealift—to assure initial deployment capability and long-term sustainability of these forces. Significant improvements in strategic mobility capabilities are required. The Army strongly supports initiatives by the Air Force and Navy to improve the status of the strategic airlift and sealift assets. Such improvements are necessary if the Army is to retain its credibility and effectiveness, as a deterrent and warfighting force.

The threat which faces our nation today has not radically changed from that which I described last year. Our potential enemies continue to steadily increase and qualitatively improve their armed forces. I do not intend to belabor the threat with which America is faced, nor will I cover in detail our interrelated modernization and readiness programs which prudence and potential enemies require. You are generally familiar with the nature of the global threat, and the fiscal year 1984 Army Posture Statement relates the primary thrust of our improvement and modernization initiatives. I would like instead to focus on three specific areas of interest—physical fitness, our Special Operations Forces, and the Army-wide drive for excellence.

An Army that is not physcially fit cannot survive on the modern battlefield. I am pleased to report that the physical fitness initiatives which we implemented last year are producing results, and that today's Army is approaching a level of total physical fitness not heretofore experienced. Our physical fitness program is not focused just on the young soldiers at the forward edge of our fighting force and a requirement for them to maintain a specific level of performance in semi-annual tests. Instead, this program is Army-wide and applies to all ages and all aspects of physical fitness.

The modern Army physical fitness program includes conditioning, but also encompasses nutrition and diet, stress management, elimination of substance abuse, and an information program which emphasizes to our soldiers and their families the benefits of physical fitness. The Army Physical Fitness Center at Fort Benjamin Harrison is developing programs designed to educate leaders at each echelon about physical fitness. In a parallel effort, the Army Physical Fitness Institute at the Army War College is focusing on a variety of challenges including stress management, physical requirements for continuous combat operations, and conditioning criteria for soldiers beyond the age of 40.

The Army's physical fitness program is more than rhetoric. We have expanded our physical training tests and made them tougher. Graduation from schools and selection for promotion have been tied to physical conditioning criteria. Those who cannot meet certain levels of fitness are considered for elimination from the service. Similarly, there is no place in our Army for those who engage in substance abuse. Soldiers who drive while intoxicated and are apprehended by military authorities face a variety of penalties including mandatory loss of driving privileges for a year. If drug and alcohol abusers cannot be rehabilitated through our prevention and control programs, they are eliminated from the Army. Victory on the modern battlefield requires the highest level of physical conditioning. There is no room in our Army for those who are not physically fit.

A body of soldiers who exemplify the physical fitness about which I have been speaking are the Army's Special Operations Forces. These units provide us with an arsenal of skills not readily available in other units which can be tailored to the requirements of a given situation. Areas of expertise maintained in both Active and

Reserve Component Special Operations Force units range from training other forces in counter-terrorist activities and unconventional operations to conducting strike and intelligence operations behind enemy lines in mid- to high-intensity warfare. These are capabilities which are urgently required by our nation.

Formation of the 1st Special Operations Command at Fort Bragg, North Carolina in 1982 was a significant accomplishment in improving the effectiveness of Special Operations Forces. In addition to coordinating and improving the training of these highly effective units, this command will be the headquarters responsible for supervising and sustaining special mission units during actual operations.

I would like now to focus on excellence in the Army and its importance for us in the coming year. Achievement of excellence is difficult to judge because excellence for one person might be average performance for another. For the Army, obtaining excellence means setting realistic goals for improvement, working toward and achieving these goals, and then repeating the cycle. The end result will be to make our adequate soldiers good, our good soldiers better, and our better soldiers the best in the world. We can expect no more from our soldiers, not can we accept any less.

For soldiers who may be required to engage an enemy equipped with extremely sophisticated equipment and weapons, there can be no substitute for technological and materiel excellence. Survival of the individual soldier depends on it. For an Army where small units may be subjected to previously unexperienced confusion and stress, there can be no substitute for excellence in individual training and leadership. Victory depends on it. For our Total Army—Active, Reserve and National Guard—who may be required to fight outnumbered on distant battlefields, and for the civilian component which supports them, there can be no substitute for a standard of excellence in terms of combat readiness. The security of the nation depends on it.

To achieve our goal of excellence, we need your continued support. The budget request for fiscal year 1984 is already austere. In compliance with administration guidance, we have reduced our programs to a level which we consider barely acceptable. There is no fat to cut—reduction in programs will result in destruction of muscle and sinew, and produce an overall degradation of the force.

The Army of today and the Army of tomorrow needs stabilization in terms of program execution, ranging from force development and planning programs to those for procurement of materiel. Instability produces confusion and inefficiency which we cannot tolerate. Force levels, and unit organizations—the basis for our personnel acquisition and materiel procurement actions—must be governed by requirements and missions, not by other factors. Procurement agencies must be allowed to utilize multi-year acquisition contracts in order to achieve maximum cost effectiveness for each dollar in our budget. Long-term development programs must receive financial support at constant levels if the Army is to continue as a combat-ready, effective, deterrent and combat force.

Before concluding my remarks, I would like to take this opportunity to urge the members of Congress and the people of our great Nation to actively support and participate in the bicentennial celebration of the signing of the Treaty of Paris in 1783. Historians describe this Treaty as the third most important document in United States history, the Declaration of Independence and the Constitution being the other two. Commemoration of the actual Treaty signing and the events surrounding it are of great significance to the Army and the Nation which it serves. The Revolutionary War, which the Treaty of Paris formally concluded, won freedom and independence for the colonies and provided Americans the opportunity to establish a national government.

Clearly, the bicentennial celebration of the Treaty of Paris is of great historical significance. It not only commemorates the culmination of a successful war effort but also marks the genesis of the American Army as a force capable of both achieving peace and providing an environment in which the nation could develop and ratify our Constitution.

The Army is as important to peace and stability today as it was in 1783. We are dedicated to maintaining its strength and vitality. I will be followed by General Meyer who will discuss the direction which the Army is taking as it improves combat readiness today while also preparing for the battles of tomorrow. I know that you will carefully consider his expert testimony and his views, with which I am in complete accord.

AMERICA'S ARMY: LAND POWER IN TRANSITION

JOINT STATEMENT

BY

THE HONORABLE JOHN O. MARSH, JR.
SECRETARY OF THE ARMY

AND

GENERAL EDWARD C. MEYER
CHIEF OF STAFF, UNITED STATES ARMY
DEPARTMENT OF THE ARMY

BEFORE

COMMITTEES AND SUBCOMMITTEES
OF THE
UNITED STATES SENATE

FIRST SESSION, 98TH CONGRESS

THE POSTURE OF THE ARMY AND
DEPARTMENT OF THE ARMY BUDGET
ESTIMATES FOR FISCAL YEAR 1984

FOREWORD

The recent dedication of the Vietnam War Memorial was a tribute both to those who fought and to those who gave their lives in support of a noble cause. It is also a stark reminder that in all significant conflicts in which the United States has been involved, forces on the ground--Land Power--have borne the brunt of the fighting and suffered the bulk of the casualties.

INTRODUCTION

> "In this era of nuclear balance, deployed conventional forces assume a much increased weight in the equation of deterrence -- especially land forces. Troops on the ground are the most believable expression of a nation's intent."
>
> -- General Creighton Abrams

Today, the United States is facing significant threats to its national security. Throughout the rest of the century, these threats will remain unabated and America will continuously be confronted with a broad spectrum of challenges. The Army of the United States, with its forward deployed elements and its continental-based strategic reserve, helps deter conflict by its very existence and is prepared for a full range of contingencies worldwide if America's policy of deterrence fails.

America does not need nor does it seek to build the world's largest Army. The Active Component is, in fact, the fifth largest active land force in the world today. What America does need, however, is assurance that it has fielded a land force sized and equipped for the broad spectrum of challenges which our Nation faces. While some threats are best answered by nonmilitary options, others, unfortunately, demand a military response and a military capability in-being.

The Army's view of the future, bolstered by ample historical evidence, is that America's resolve is likely to be tested many times during the remainder of this century. American land forces--disciplined, well-trained and fully-equipped--offer options not attainable by other means.

A commitment to a standard of excellence is necessary if the Army is going to meet its responsibilities to national security in this era of constrained resources. Each soldier and civilian employee is challenged to develop personal goals which lead to excellence and then to pursue these goals with initiative, drive and perseverance. The result should be that the poor performers become good, the good become better, and the better become excellent. Our goal is to produce for the Army--through excellence in leadership, effective training, and individual achievement--the finest soldiers in the world. We must achieve a standard of excellence in all phases of our operations if we are to be successful on the battlefields of today and tomorrow.

Our Total Army--the Active Component, the Army Reserve and the Army National Guard--is undergoing a significant transition so that it can achieve the excellence which today's challenges and those of the future clearly demand. Mandated by the activities of a very dangerous potential opponent whose force levels and capabilities far exceed any legitimate defensive requirements, this transition includes reevaluation of doctrine and tactics in light of changing technology and the development and procurement of systems necessary to operate on future battlefields.

This annual report to the Congress outlines the military threat as it affects the desired structure of our Land Power. It also explains the progress and intended direction of Army programs we are proposing to Congress, which alone has the constitutional responsibility for the raising of Armies. Attainment of the capabilities which this Nation requires in its land forces depends on a program of stable and predictable funding so that we may prepare for tomorrow's battlefields while retaining combat readiness today.

AMERICAN LAND POWER AND ITS CHALLENGES

> "When the smoke cleared away, it was the man with the sword, or the crossbow, or the rifle, who settled the final issue on the field."
>
> -- General George C. Marshall

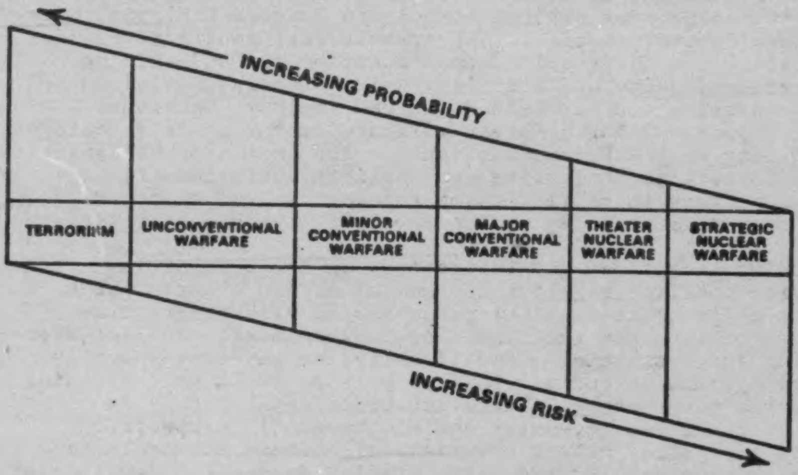
In this era of nuclear parity, increasing Soviet capabilities, and restricted resources, the need for strong American Land Power is more important than ever before. The American Army must be the core element of our national military capability, yet its effectiveness depends heavily on the vital contributions of our sister services and the willing cooperation of our friends and allies with whom we share common security interests.

Some question the need for America to maintain strong land forces, urging instead that we develop other military capabilities. These critics argue that the United States can best support its security interests by directly defending the continent while simultaneously challenging with sea and air power Moscow's attempts to project military power outside its present territorial stronghold. Such a line of reasoning proceeds from a profound misunderstanding of the nature of the Soviet challenge. The key to Soviet power and the Soviet Union's continuous pursuit of global domination is military strength, with its land forces at the cutting edge.

The primacy of land forces within the Soviet military machine is clear. While the Soviets have built impressive air and naval forces, and have thrust headlong into space exploration and research, these efforts have not been at the expense of their land force development programs. All Soviet military and naval doctrine reflects the importance of land warfare. The Commander-in-Chief of the Soviet Navy and the architect of her modern naval forces, Admiral of the Fleet Sergei G. Gorshkov, emphasized this point in a strategic discourse, writing: "...There have virtually been no pure land and no pure sea wars, one principle remaining unchanged: the results of a victory in a campaign or in a war as a whole can be consolidated only by the land forces capable by their actual presence of asserting its reality." Current Soviet international prestige and influence stem almost entirely from the capabilities of its modern military forces, and in particular its massive land armies.

The Soviet leadership fully appreciates the benefits which result from maintaining a formidable military force, including a substantial nuclear arsenal. Following the 1962 Cuban crisis, the Soviets embarked on a program of military improvement. In the early 1970's, the Soviet Union succeeded in challenging American nuclear superiority while simultaneously continuing the modernization and expansion of its conventional forces. The political effect of this growth in military power was a significant increase in Soviet influence and prestige, virtually guaranteeing a continuation of their policy of heavy investment in force growth and modernization.

Currently, and in the immediate future, the consequences of this Soviet policy of sustained force growth and modernization pose challenges to the United States across the entire spectrum of military conflict. The most dangerous portion of this spectrum, graphically depicted on the following chart, is the extreme representing a strategic nuclear exchange, by far the gravest risk with which we are confronted.


INCREASING PROBABILITY
TERRORISM
UNCONVENTIONAL WARFARE
MINOR CONVENTIONAL WARFARE
MAJOR CONVENTIONAL WARFARE
THEATER NUCLEAR WARFARE
STRATEGIC NUCLEAR WARFARE
INCREASING RISK

SPECTRUM OF CONFLICT

Because of our nuclear retaliatory capability, among other factors, the probability of a major nuclear conflict occurring remains low. However, we cannot dismiss or disregard the threat on the basis of low occurrence probability. Only if we maintain an adequate and secure nuclear retaliatory capability can the United States assure that the probability of a nuclear exchange will continue to remain low.

The fact that America and the Soviets have a "stalemate" in terms of strategic nuclear forces does not necessarily diminish the probability of other forms of conflict. Soviet leaders have always preferred to operate where the risks to their security are not great, but where the benefits ultimately work to the expansion of their power and influence. To counter Soviet initiatives, the U. S. and its allies must devote a considerable portion of their attention and energies to the low end of the conflict spectrum.

There is abundant evidence that the Soviet Union is, in fact, operating at the low end of the conflict spectrum both directly and through surrogates. Soviet intervention in Afghanistan is a prime example of direct operations. Moscow's clients and surrogates receive huge quantities of modern tanks, armored vehicles, helicopters and other arms and equipment The Soviets have provided advisors and materiel aid to Hanoi and have been repaid with access to strategically valuable air and naval facilities. Soviet arms sales to Libya have benefited guerrilla groups such as the Palestine Liberation Organization and the POLISARIO, as well as enabling Libyan initiatives in Chad. Cuban proxies exploit turmoil in Angola, Ethiopia, Grenada, and Central America. The Arab-Israeli conflict provides the Soviets and their allies opportunities for undermining international peace and stability while creating divisions between America and her friends in the region. Continued Soviet support of North Korean military improvements encourages instability on the Korean peninsula. The increased willingness of the Soviets to capitalize on conflicts worldwide requires that we possess an ability to operate across the spectrum of conflict, and especially at the level of low-intensity warfare.

Soviet intentions and initiatives in the area of low-intensity conflict make our courses of action clear. The U. S. and its allies must continue peacekeeping efforts--such as those in Lebanon and the Sinai--to prevent overt conflict from erupting and escalating. Additionally, we may employ our Special Operations Forces (SOF) to provide small unit training to foreign governments. These and other capabilities to operate at the low-intensity end of the conflict spectrum provide our policy makers a variety of options for protecting American interests and promoting stable, democratic development in the less-developed areas of the world.

The cooperation of friends and allies is critical in terms of exercising strategic options because the United States has neither the resources nor the desire to bear the entire burden of security for the Free World. In most cases, U. S. security interests and those of our allies coincide, and we share the common burden of defense. Further strengthening of our security assistance programs will enable our friends and allies to better defend themselves, significantly reducing conflict potential worldwide.

While the Army must be prepared to counter threats at the low end of the conflict spectrum, the central threat to which

American Land Power must continue to respond is large-scale conventional war--the area of greatest Soviet advantage. Unfortunately, during the Vietnam era, the bulk of the Army's efforts and resources were focused on fighting a low-intensity conflict. Our capabilities to conduct full-scale conventional war deteriorated as we expended resources in Southeast Asia. Today, we are just emerging from the consequences of the Vietnam era.

While the U. S. was fighting in Vietnam, Moscow continued its force expansion and modernization efforts. Soviet improvements in land forces steadily eroded the capabilities of the North Atlantic Treaty Organization (NATO) relative to the Warsaw Pact. Soviet modernization programs have dramatically altered the potential nature of war in Europe. Heavy Soviet investment in defense procurement produced three times as many tanks and twice as many armored vehicles as the U. S. in the last three years. The Soviets have added at least 30 divisions to their ground forces in the last fifteen years, bringing their total active strength to more than 180 divisions. Additionally, Soviet technological improvements in fielded systems have whittled away much of the qualitative advantage which the West previously enjoyed.

The current NATO-Warsaw Pact force relationship allows Soviet military leaders to contemplate a war in Europe characterized by massive, fast-moving, echeloned units thrusting deep into NATO rear areas to attack nuclear systems and other valuable targets. Deep attacks by Warsaw Pact forces would prevent lateral reinforcements and demand the attention and resources of front-line commanders. Modern, well-trained, substantial land forces provide Soviet leaders with expanded military capabilities which could seriously jeopardize the defense of Western Europe.

Some Americans have reacted to these enhanced Soviet military capabilities by searching for a dramatic, "new" solution. One such proposal calls for a decrease in the U. S. land combat capability in Europe, in the belief that such action would stiffen allied resolve and determination to enhance NATO's overall defenses. Such an approach fails to recognize that NATO's credibility depends on the mutual confidence of its members. The United States is fully committed to the defense of Europe.

A force reduction in Europe would be counter-productive. If our NATO allies see a weakened U. S. commitment, they may be less willing both to reinforce NATO and to react to events which occur outside of NATO--even though those events could ultimately undermine the security of the Free World just as certainly as would direct military attack.

Soviet initiatives over the past decade have threatened our security, but they also have suggested probable courses of action which Moscow will pursue in the future. We have already seen the Soviet proxies and surrogates at work and the new leadership in Moscow is certainly attuned to their use. The Soviet invasion of Afghanistan is visible evidence of Soviet power projection activities and provided Moscow with a valuable testing ground for new equipment and tactics. Additionally, by not directly threatening vital Western interests, the Soviets were able to sample Western reaction to limited initiatives without bringing about a direct confrontation.

The challenge embodied by a Soviet or surrogate move toward the Persian Gulf or some other area of importance to the Free World must be met by a credible U. S. power-projection capability which could operate effectively with those resources our allies could muster. America presently has the framework for such a response--the U. S.-based strategic land reserve of Active and Reserve Component forces, with the Army's contribution to the newly formed Central Command (formerly called the Rapid Deployment Force) at its cutting edge. Like our forces forward-deployed in Europe, our U. S.-based strategic land reserve must also be prepared to fight a modern enemy force, whether it be a Soviet expeditionary element or a Soviet surrogate. In order to accomplish this task, the Total Army requires the best equipment and training available.

Unit effectiveness and modern equipment are of limited value, however, unless our land forces can be transported rapidly to those areas where they are needed. The Army relies on the air and sealift capabilities of the other services for this support. These capabilities must be substantially expanded in the near future. The Army also needs the support of allies who will assist in deployment and logistical support, as well as fight alongside U. S. troops for the common good.

The U. S. and its NATO partners must counter the continuing growth in Warsaw Pact capabilities or else the Soviets will not perceive that they are challenged sufficiently by NATO's defensive strengths and military posture. This need not necessarily be done by matching tank for tank, helicopter for helicopter, or man for man, but it certainly will require all the skills and resources that we collectively can muster.

That U. S. national interests will be challenged at any point along the spectrum of conflict where we are inadequately prepared is a certainty. Of great importance to the protection of our national interests is the quality and status of our Land Power. We are faced with a significant and continuing growth of a threat to our freedom. The size, sophistication, and projectability of Soviet Land Power necessitates a significant effort by the Army to design and field land forces capable of responding to these new conditions. This is a major challenge for our Army as well as for our government.

LAND POWER IN TRANSITION

> "Tomorrow is never the time to start your preparation. The safety of this Nation in the atomic age cannot be built on good intentions and the decision to prepare when the time comes."
>
> -- General Dwight Eisenhower

The fundamental purpose of U.S. Land Power is its ability, alone or in concert with allies, to meet and defeat other land armies in a mid- to high-intensity conventional or nuclear conflict. This is not the Army's sole responsibility nor even, at any given moment, its most urgent. However, mid- to high-intensity warfare poses the greatest risk to the security of our Nation and is therefore the conflict for which we design and train a large segment of our land forces.

The sophisticated nature of modern warfare reflects the technological growth of modern societies. Armies have leaped from smooth-bore cannons to precision-guided artillery munitions in the space of a century and from dreams of flight to space vehicles in even less time. This tremendous growth in technology produces a serious dilemma for military planners, since armies are not infinitely versatile nor military budgets infinitely elastic. Readiness for today and modernization programs for tomorrow are both required.

There are two basic approaches to solving this dilemma. One way, the way chosen by our most powerful potential adversary, is to spend its way out of it. This requires investing so heavily and continuously that sheer quantity provides a margin of protection against technological innovations. Given the very different priorities of a free society, that option is not open to us.

The other basic approach--more affordable but also involving more risk--is to develop an operational concept and field a force which is both appropriate for today's battlefields and flexible enough to be adapted to the battlefields of tomorrow. We have spent the last three years developing such an approach, and call it the AirLand Battle concept. Because it is so central to what the Army is doing today, both to improve current readiness and to preempt future shock, it is appropriate to outline what this concept is, and what it is not.

In essence, the AirLand Battle concept describes how tactical effort must be distributed to significantly improve combat effectiveness. It asserts that in mid- to high-intensity combat, we will face an opponent who is equipped with sophisticated weapons and equipment and who vastly outnumbers us. In such a conflict, American and allied land forces cannot afford to fight as if war were nothing more than a series of collisions along a shallow front, with the timing and location of battles dictated by the capabilities and preference of the enemy. In fact, such a scenario would fail to exploit the significant advantages which our Army does possess, including our greater ability to acquire and process information, the capacity of our command-and-control system to anticipate and respond rapidly to changing requirements, and the greater versatility and initiative of our soldiers and commanders.

To give ourselves a reasonable prospect of tactical success on tomorrow's battlefields, the AirLand Battle concept requires that we wrench control of events from the enemy and exploit weaknesses against which we can rapidly marshal our deployed strength. By capitalizing on our strengths and the enemy's weaknesses, we seek to develop a battlefield advantage resulting from tactical leverage.

If we are to apply this tactical leverage, we must create it, and we must do so before a numerically superior enemy engages and overwhelms our front-line forces. In conjunction with the Air Force, which has cooperated in development of this concept, we need to locate and attack enemy targets deep within his territory. Specifically, we need to strike supply and transportation facilities and to neutralize or destroy second echelon, reinforcing enemy formations before they reach the forward battle area. Simultaneously, we must engage successfully front-line enemy formations already locked in combat with our forces.

The AirLand Battle concept, then, is both less and more than some have claimed it to be. It is not a strategic panacea, which unqualifiedly assures success on tomorrow's battlefield. On the other hand, it is significantly more than a simple restatement of long-standing tactical principles. The concept is predicated on the fact that because of evolving technology, tomorrow's battlefields will offer new opportunities and create new vulnerabilities. The Land Power which best takes advantage of the changed environment will most likely emerge the victor.

The AirLand Battle concept promises a more productive use of conventional resources than the concept which it replaces, but it does not preclude the use of nuclear or chemical weapons. On the contrary, we recognize explicitly that nuclear and chemical weapons remain an essential feature of our tactical arsenal and, by their availability, may deter enemy use of them and thereby influence the enemy's conduct of operations. In this, the AirLand Battle concept is consistent with agreed NATO and U. S. strategy.

The AirLand Battle concept does not envision a hands-off, high-technology battle whose outcome will be decided by sophisticated, long-range weapons without any necessity for close engagement. While such a scenario is certainly attractive, it simply does not coincide with reality. The fact is that today, and for a long time to come, we lack the technology to destroy heavy enemy divisions with over-the-horizon conventional weapons. The AirLand Battle concept reaffirms the requirement for a combined arms approach to warfare, in which firepower and maneuver meld to achieve results which neither could produce alone. The essential element in this melding process is the individual soldier--well-equipped, well-trained, and well-led.

In order to best utilize our inherent advantages and to maximize the effectiveness of the American soldier, the AirLand Battle concept seeks to exploit the complexity of the modern battlefield. As armies have grown in size and sophistication, their vulnerability to selective disruption has similarly increased. This is especially true for armies like those of the Soviet Union, whose penchant for centralized direction at very high levels of command renders them especially vulnerable to situations in which there are unexpected threats and unanticipated courses of action.

Similarly, we recognize that because the distances over which land forces maneuver in modern warfare have expanded, their dependence on rapid mobility and lines of communication has also increased. The AirLand Battle concept seeks to manipulate that dependence and, through more careful targeting of our deep-attack resources, to create time-and-space gaps in the flow of enemy formations toward the front lines which our own maneuver forces can exploit.

Finally, and perhaps most important, the AirLand Battle concept recognizes that none of our objectives can be achieved unless America's Land, Sea and Air Power function as an integrated force. The AirLand Battle concept neither implies nor requires a change in traditional service missions. It does, however, demand a closer integration of ground and air operations than we have heretofore achieved, and we are working closely with our sister services toward this end.

As this brief discussion makes clear, the AirLand Battle concept is not just a futuristic vision. In addition to looking at tomorrow's battlefields, it describes the way that we should and must fight today, with the means at hand. Consistent with that view, we are today teaching, exercising, and refining our understanding of land and air operations. This development is not limited to paper analyses and computer wargames, nor is it occurring just in a sterile laboratory environment. Instead, it is taking place in the field, in Europe, in Korea, and in the United States.

Recognizing the demands that the more fluid operating style of the AirLand Battle concept will make on leaders and soldiers at all levels, we are placing renewed emphasis on tough, realistic, and continuous training. In a parallel effort, we are trying to curtail less important requirements which distract from our fundamental battlefield responsibilities.

Because the modern battlefield will be a place of extreme violence and confusion in which soldiers will be placed under extraordinary stress, we are taking steps today to build into our force structure a measure of unit cohesion and stability which the Army has not enjoyed for decades. The early results of this effort are very encouraging. With the continuing improvement in the quality of individual soldiers joining the Army, our efforts at unit stability and cohesion promise significant improvements in the discipline, training, teamwork, and morale necessary for successful execution of the AirLand Battle concept.

Finally, because tomorrow's Land Power may well find itself engaged where heavy maneuver forces are not currently deployed, we are actively seeking ways to substitute agility for muscle. We are not doing this because we discount the continued importance of heavy maneuver forces on the modern battlefield. Instead, we recognize that an inability to respond rapidly with adequate forces to a volatile crisis would be like failing to respond at all. Today, at Fort Lewis, Washington, the 9th Infantry Division is pushing available lightweight technology to the limit as it evaluates new concepts and doctrine--not in the laboratory, but in the field. To support this program, ways must be found to provide greater fiscal responsiveness and flexibility to meet the requirements of changing technology.

These innovations at Fort Lewis, as well as other initiatives described in this document, assist us in upgrading the Army's readiness today while implementing the AirLand Battle concept. As a result of the Army-86 studies (initiated in 1978 to examine the battlefield requirements of the future) and the follow-on Division-86 study, we are currently restructuring our combat division organizations to maximize the effectiveness of new weapons systems and to enhance the survivability and combat capabilities of our land forces.

Because the AirLand Battle concept requires a major increase in current capabilities, these efforts have a current price. Fuel consumption, flying hours, repair parts, training ammunition and man-hours are costly, but are the price of current readiness. We believe that this price is disproportionately small in relation to the obvious return.

As we indicated earlier, no operational concept for today can be considered adequate if it does not anticipate tomorrow's battlefield. The over-the-horizon precision weapons which today--in their infancy--merely influence the predominant tactical situation tomorrow--fully developed--may completely transform it. When available in great numbers and supported by redundant, jam-resistant, high-resolution sensors and command, control and communications systems, these sophisticated weapons will significantly increase our tactical advantages. Such weapons will permit us not merely to achieve the temporary freedom of maneuver which is the best which we can hope for today, but also will enable us to deprive our enemies of the ability to mass and maneuver effectively superior combat power, which is their principal battlefield advantage.

The AirLand Battle concept is valid for today and tomorrow. We believe that it furnishes a logical framework for integrating new technology into the force structure in such a way that we neither foreclose radical improvement nor unwisely anticipate it. The same deep-attack systems which today enable us only to disrupt and delay enemy formations may tomorrow enable us to completely destroy them before they engage our forces. The same surveillance and target acquisition systems which today make the battlefield translucent may tomorrow make it transparent. And the same command-and-control systems which today permit us only to anticipate and react more rapidly to the flow of battle may tomorrow allow us to completely dominate it. When these transformations occur, we will be ready to exploit them.

Clearly, our Army is in transition. We are proceeding according to a well-developed plan, attempting to meet today's requirements while preparing for tomorrow's. We are enhancing the readiness of our current force through modernization, while acquiring the capability to fight and win on the battlefields of tomorrow.

THE STATUS OF LAND POWER TODAY

"It is not the big armies that win battles;
it is the good ones.

-- Maurice de Saxe
Marshal of France

American Land Power provides the Nation a means to demonstrate unmistakably its commitment to maintaining freedom and preserving its security. As we recently showed in Exercise REFORGER (return of forces to Germany), Exercise Bright Star in Egypt, and Exercise Team Spirit in Korea, and as we demonstrate daily in less spectacular training activities around the world, the Army is performing its mission of deterrence and is prepared to perform its combat mission, if called upon to do so.

Army readiness is our primary goal. Achievement of this goal requires us to provide the Total Army with equipment necessary to perform assigned missions, and to develop a balanced force responsive to today's combat requirements. Readiness is the objective of our vast manning and training efforts. It dictates that we undertake modernization programs, both to keep pace with technological advances of potential enemies and to replace aging and difficult-to-maintain equipment. Development of sustainability through prepositioning of war reserves and equipment and enhancing our industrial base are initiatives which increase readiness, as are the entire range of mobilization and deployment initiatives. The current readiness of our land forces is the result of improved capabilities across all functional areas of the Total Army. There is no substitute for readiness, yet it is not an easily attainable goal.

MANNING THE TOTAL ARMY

The most important asset in our Army is people. Quality personnel, adequately trained and in sufficient numbers, are the key to success in maintaining the combat capability of our land forces. Our concern for people encompasses our Active, Reserve, and civilian components.

During the past 18 months, the Active Army has succeeded in meeting both qualitative and quantitative recruitment goals, due in large measure to the higher compensation levels provided in fiscal year (FY) 81 and FY 82. The combination of bonuses and educational benefits available to enlistees, in addition to pay, has significantly assisted us in reversing a previously unfavorable situation. For the first time in nearly a decade, military pay approached a level of comparability with the private sector. Although the impact of the FY 83 military pay cap cannot be fully assessed at this time, the Active Component will be able to meet near-term recruiting goals in FY 83, while denying retention opportunities to soldiers who fail to measure up to Army standards. We fully understand and appreciate the conditions which led to the President's decision to postpone any pay adjustment for FY 84. If full pay comparability is restored in FY 85, the impact of the FY 84 pay freeze on recruiting and retention may be relatively negligible. Still, we would be less than candid if we suggested that recruiting and retention successes are unrelated to pay comparability. In fact, these issues are inseparable.

We are dependent upon the Reserve Components as well as the Active Force for Total Army mission capability. Critical combat and support wartime requirements have been assigned to Reserve Component units and the Active Army has been kept at minimally acceptable strength levels. Any significant reduction in Active Army strength would not only send incorrect signals to allies and potential enemies regarding America's resolve, but would also jeopardize our conventional warfighting capability. For example, in the European scenario, reduced numbers of Active Component forces--already outnumbered--might not be able to sustain an adequate defense using only conventional weapons until even rapid-deploying Reserve Component units could reinforce. Our Active-Reserve Component ratio must remain aligned for mission requirements.

The Reserve Components provide one-third of the Total Army's combat divisions and approximately two-thirds of its combat support capability. The personnel status of Reserve Component units, while still below desired levels, is improving. Our manning goal is to provide sufficient numbers of Reserve Component personnel to man units at levels consistent with the Army's readiness objectives. In FY 79, the Reserve Components were approximately 20 percent short of their manning goals. In FY 84, because of fiscal constraints, we will be approximately 10 percent short of a raised manning goal.

The Army hopes to continue improving its Reserve Component unit strength posture through extensive reenlistment programs and by recruiting quality soldiers who will remain in our land forces. Towards this end, the Army leadership is expanding the Full Time Unit Support Program within congressionally-imposed constraints and is actively supporting the Selected Reserve Incentive Program (SRIP). These congressionally-mandated initiatives are designed to provide full-time manning of both early-deploying and early-mobilizing but non-deploying Reserve Component units, and to improve recruitment and retention in selected Reserve Component units through payment of cash bonuses and provision of educational assistance.

The strength level of the pretrained Reserve Component individual manpower pool, although improving, remains unsatisfactory. Consisting of the Individual Ready Reserve, the Inactive National Guard, Standby Reserves and military retirees, this pool provides the individual replacements for both Active and Reserve Component units that would be required in wartime until the training base could begin to provide replacements. Although this manpower pool contains a surplus of soldiers in several non-combat military specialties, it also has a shortfall of some 100,000 enlisted personnel in combat specialties. To help eliminate this shortfall, bonus funds have been requested for those who enlist and reenlist in the Individual Ready Reserve. Additionally, the Army has requested authority to increase the total military service obligation from 6 to 8 years.

The efforts of individual States to help improve the personnel status of the Reserve Components are most commendable. Thirty-two States currently provide educational assistance and other benefits to National Guard personnel; Hawaii extends State benefits to selected reservists. These welcome initiatives assist in solving personnel acquisition and retention problems in the Reserve Components.

Adequate strength levels lose some of their value when units suffer from personnel turbulence. Although not now a major problem for our Reserve Components, personnel turbulence is a significant problem for our Active Force since it degrades readiness and combat effectiveness. To eliminate the adverse impact of this turbulence, we have initiated a personnel stabilization and unit replacement program.

To achieve personnel stabilization, first-term soldiers are assigned to a unit for 3 years. Under the unit manning system, these soldiers--who train and work together--are assigned both overseas and in the United States as a unit. At the end of the 3-year period, these personnel will form new stabilized units, be assigned to other jobs, or be released from active service, as appropriate.

The unit replacement system complements the American Regimental System program, the first phase of which was recently implemented. Composed of battalions linked under one regimental flag or "color," the system is based on paired battalions serving in the continental United States (CONUS) and overseas. The regiment is the community within which a soldier is assigned and with which he identifies throughout his entire Army career. Although it is a non-tactical unit, the regiment creates an environment which fosters cohesion and commitment while improving morale, training and readiness.

To enable these new manning programs to work, the Army must make the maximum number of personnel available for service in combat related units and supporting activities. In pursuit of this objective, we have implemented during the past two years a civilian hire substitution program which permits us to replace military spaces with civilian spaces, where feasible. Recent civilian hire ceilings have limited the effectiveness of this program. The addition of more civilians to our total force frees soldiers to perform their combat roles while enhancing readiness by increasing stability and expertise in our sustaining base.

The Army's civilian work force is a highly dedicated group of men and women 391,000 strong. We rely heavily on our civilian component to perform critical tasks required for the daily operation of the three uniformed components of the Total Army. These tasks directly affect the readiness and warfighting capability of our land forces.

A well-trained Army and a professional civilian work force must have competent leadership if they are to reach maximum effectiveness. We are improving today's Army by focusing more effort on leadership development. Our continuing goal is to develop leaders at all levels who possess the highest ethical and professional standards, and who are committed to mission accomplishment and the well-being of subordinates.

Because leadership is critical on the modern battlefield, its fundamentals are being stressed at all levels of military instruction. Courses on ethics and professionalism have been established at all commissioned officer schools and are under development for noncommissioned and warrant officer schools.

Leadership begins with our officer corps, and we are striving to attract qualified personnel to serve in this capacity. Currently, we are awarding four-, three-, and two-year Reserve Officer Training Corps (ROTC) scholarships on a competitive basis to deserving young men and women. A two-year scholarship program is available for active duty enlisted personnel who have completed two years of college and meet other requirements. Additionally, under the Simultaneous Membership Program (SMP), an individual can maintain membership in the Reserve Components while participating in the ROTC program. The Army will grant 6,500 ROTC scholarships in FY 84. We believe that the return in terms of quality officers more than justifies the funds expended.

Excellence in our modern Army requires a strong cadre of noncomissioned officers (NCO), since our NCO's are both the backbone of our fighting units and the new and junior soldier's first line trainers and supervisors. Teaching our NCO corps how to lead, train and teach is, therefore, a critical task. We have increased emphasis on providing leadership and technical training both in schools and in field units. Continued development of field-exportable leadership and technical courses for all levels of our noncomissioned officer corps is essential because of the key role which NCO's have in shaping and running our Total Army.

Classroom training in leadership skills is but the first step in leadership development. Believing that greater leadership initiatives must be taken by junior leaders if the Army is to be successful in peace and war, we encourage a command climate which reinforces basic values and empowers leaders at all levels to act decisively and creatively. Personnel and training systems are being aligned to support unit performance and leadership development at the lowest levels. These efforts are developing tomorrow's leadership, while simultaneously improving the readiness of today's Army.

TRAINING OUR LAND FORCES

An army fights the way it is trained. In combination with our sister services and allies, America's ground forces must be physically, mentally, and emotionally prepared to engage and defeat a numerically superior enemy. There is no substitute for realistic training.

We are providing our soldiers with realistic training at the lowest possible cost through a variety of programs. Foremost among these programs, in terms of Army-wide application, is the use of simulators. Training technology--much of which includes video disc, computer-generated imagery, and laser systems--provides combat simulation at costs well below those of comparable live exercises. The Multiple Integrated Laser Engagement System (MILES) is an example of such technology.

MILES enables opposing forces to maneuver and engage each other in a realistic combat environment without the risks inherent in live-fire exercises. Soldiers are equipped with weapon-mounted laser devices which emit beams coded appropriately for the type weapon on which the device is mounted. Detection devices on opposing soldiers and equipment determine whether or not the target was "hit" by a weapon which could cause damage. Vehicles and soldiers are made aware of "hits" or near misses by means of audio-alarms and visual displays. Never before has such realistic and beneficial training been achieved at such minimal costs.

Other simulator systems currently in use or under development include the Air Ground Engagement System-Air Defense (AGES-AD), flight simulators and the Unit Conduct of Fire Trainer (UCOFT). Utilization of simulators to teach skills not easily attainable or affordable with operational equipment conserves time, people, fuel, ammunition, repair parts and other resources.

Activation in 1981 of the National Training Center (NTC) at Fort Irwin, California created an opportunity for battalion level task forces to maneuver against comparable opposing forces in realistic combat situations. Live-fire exercises, MILES, actual deployment, and nuclear, biological and chemical (NBC) warfare are all part of NTC training. Sixteen battalions trained at Fort Irwin in FY 82 and twenty battalions are scheduled to train there during FY 83.

Participation at Fort Irwin is an experience that will be shared by the Active and Reserve Components of the Total Army. A roundout battalion from the Georgia National Guard is scheduled to participate in NTC training with its active duty brigade during FY 83, and three National Guard roundout battalions are scheduled for training at Fort Irwin with their active duty brigades in FY 84. The ultimate readiness and training goal is to have each Reserve Component heavy battalion participate in exercises at the NTC at least once every 36 months.

In addition to the NTC experience, the Joint Exercise Program provides realistic individual and unit training for the Total Army. During FY 82, the Army participated in 12 Joint Chiefs of Staff (JCS) directed and 34 JCS coordinated exercises, at a cost of $79 million. Army Reserve and National Guard units and cells participated in many of these exercises.

In addition to joint exercises, the combat capability of our land forces has been enhanced to improve the operational readiness and hence the deployability of high priority Reserve Component units. The Capstone program and the affiliation system are of particular importance.

Under the provisions of the Capstone program, the Army has aligned Active and Reserve Component units in a structure which meets wartime requirements and the needs of the continental sustaining base. With the publication of the Capstone-Pacific plan in FY 83, each Reserve Component unit will know its specific wartime mission for major contingencies in which it might be involved. Most Reserve Component units are afforded the opportunity to plan and train in peacetime with the unit with which they will operate in wartime. Capstone has fostered a closer relationship between Active and Reserve Component units, enhancing the combat capabilities of the Total Army.

The Affiliation program consists of three categories: Roundout, Augmentation, and Mobilization and Deployment Capability Improvement programs. In the Roundout category, Active Component divisions which are organized with fewer maneuver or support units than required are "rounded out" or raised to required strength and configuration by the addition of Reserve Component units. The Augmentation category increases the combat power of full-strength Active Component divisions and brigades by providing additional Reserve Component forces. Under the Mobilization and Deployment Capability Improvement category, Reserve Component units which require dedicated assistance to meet mobilization or deployment schedules are affiliated with an Active Component unit to improve their overall readiness condition. The affiliation system, which has grown to 101 battalion and 202 company or detachment strength units since its inception in 1974, continues to grow and has become a valuable tool for improving unit readiness and training of both Active and Reserve Component forces.

A prerequisite for successful unit training of our land forces is successful individual training. All the modern equipment of America's Land Power is of limited value if it is not effectively maintained and employed by the individual soldier. The Army has undertaken a variety of initiatives to improve individual training. Included among these initiatives is the allocation of approximately 1,700 additional instructor personnel to our Training and Doctrine Command in compliance with congressional direction to upgrade our training base.

Another initiative to improve training involves the professional development, education and training of the individual officers and noncommissioned officers. Army schools are increasing the emphasis on tactical training to assure that key leaders at all levels understand how to employ their equipment and personnel. The Army will continue to insist on tough schools and continuous leadership development so that its land forces are able to fight effectively in any scenario.

The expansion of basic training for all Active and Reserve Component personnel from 7 to 8 weeks began in FY 82. This addition of 97 hours of formal instruction stressed new skills while increasing training hours in established courses. Of particular benefit to the Army was the addition of land navigation and basic communications skills. Soldiers also receive additional hours of instruction in rifle marksmanship, nuclear, biological and chemical (NBC) defensive training, physical fitness and other basic soldiering skills.

Beyond basic training, the Army introduced a series of programs to assure that members of our land forces remain physically capable of performing assigned tasks. The readiness of the Total Army begins with the physical fitness of the individual soldier and the NCO's and officers who lead them. Our soldiers and their leaders must be able to adequately perform their combat tasks in a stressful combat environment.

The Army physical fitness program is multi-faceted, and includes physical conditioning, life style, nutrition and diet, sports, tailored conditioning programs, the sports medicine perspective, and education of the soldier and the soldier's family. The emphasis on physical fitness throughout the Total Army is more than developing strength and endurance to pass required yearly performance tests. Our approach is one of total fitness for all ages and ranks, and in all duty assignments.

Other programs directly related to improved physical condition of our soldiers includes establishment of the Army Physical Fitness Center and the Army Physical Fitness Research Institute. The Army Physical Fitness Center has been established at Fort Benjamin Harrison to develop programs and educate the Army's leaders about physical fitness. The Army Physical Fitness Research Institute at the Army War College has been tasked to initiate, coordinate and direct applied research related to the Army's physical fitness programs and goals. Current projects include stress management techniques, motivational aspects of physical training, ascertaining physical requirements for continuous combat operations, and evaluating physical fitness standards for soldiers who have reached the age of forty.

Through proper diet and nutrition, stress management, systematic and integrated emphasis on exercise, and elimination of substance abuse (to include smoking and alcohol), we believe that we can increase combat readiness, reduce the incidence of degenerative diseases, and enhance soldier productivity. We have stepped up our drug enforcement programs through widespread screening, improved detection, and stiffer penalties for drug abusers. Soldiers who drive while intoxicated and are apprehended by military authorities will be subject to rigid penalties including mandatory loss of driving privileges for one year.

As part of the Army's program to reduce substance abuse, an Alcohol and Drug Abuse Prevention and Control Program has been established. Staffed by Army personnel, this program rehabilitates soldiers who show potential for further service and discharges those who do not. In FY 82, over 24,000 soldiers--the equivalent of a combat division--were returned to duty from this rehabilitation program. During this same period, more than 3,500 soldiers were discharged for substance abuse.

The fitness programs and goals outlined above demonstrate our commitment to developing an Army that is ready and physically capable of fighting on today's and tomorrow's battlefields. We need more physical fitness centers so that we can produce soldiers who are conditioned to withstand the rigors of combat. Soldiers who cannot meet physical fitness and weight control standards or who abuse alcohol and drugs are separated from the Army. These are programs which we must implement and goals which we must accomplish if we are to have an Army that is fit to fight.

Another factor which impacts on combat readiness and affects realistic training is ammunition availability. Because of fiscal constraints, we have insufficient quantities of ammunition to train as we think necessary. Simulators help to offset the loss of live fire training experience, while limited drawdown of war reserve items and reprograming actions help to eliminate some of the shortages. Simulators and reprograming actions are short-term fixes, but are necessary to provide that level of training today which is needed to maintain the combat readiness of our land forces.

In a situation paralleling training ammunition availability, special skill training for Army aviators remains a problem. The FY 83 annual flying hour program was reduced $20 million to offset repair parts procurement shortfalls. As a result of these cutbacks, Army aviators are incrementally losing flying proficiency and safety skills as actual flying time is reduced. Introduction of flight simulators has only partially offset this degradation of skills. In the long term, the Army Flying Hour Program must be increased to restore safety and general flying proficiency during peacetime, and to provide a wartime tactical aviation force capable of operating effectively across the spectrum of combat environments.

MODERNIZING AND EQUIPPING LAND POWER

Today, the Army has an urgent need to improve near-term readiness and to modernize both our Active and Reserve Components. We hope to realize both of these objectives by buying equipment which is currently being produced, product-improving equipment already in our inventory, and by developing and procuring new equipment when needed to counter or offset an ever-changing threat. The Army is moving from the technology of the past to that of the present and the future, but is doing so with a combination of new and improved systems.

The Abrams tank and the Bradley fighting vehicle (BFV) are new systems that we are procuring to improve the combat effectiveness of our forces which may be challenged by Soviet T-64 and T-72 tanks and their BMP fighting vehicle. The speed, mobility and shoot-on-the-move capability of the Abrams tank, recently demonstrated in Europe during REFORGER 82, have added a new dimension to our combat capabilities. Because a mix of armor and infantry forces is necessary for mutual support on the modern battlefield, the Bradley fighting vehicle has been developed. This system, consisting of the Infantry fighting vehicle (IFV) and the Cavalry fighting vehicle (CFV), provides our combat soldiers the cross-country mobility and armor protection necessary to keep pace with the Abrams tank. The Bradley fighting vehicle's 25-millimeter cannon can defeat Soviet armored infantry fighting vehicles at battlefield ranges. With the TOW (tube-launched, optically-tracked, wire-guided) system, the crews of the BFV can defeat modern Soviet tanks at long ranges.

We look to our new and improved weapons systems to bring about a synergistic effect on the battlefield, because our employment doctrine coordinates and maximizes the differing capabilities of each individual weapons system. The Abrams tank and BFV complement each other and are a highly effective team. The M9 Armored Combat Earthmover (ACE), a vehicle designed specifically for our combat engineers, further increases the combat effectiveness of tanks, fighting vehicles, and other systems on the modern battlefield. In the hands of our engineers, the ACE is used to prepare fighting positions for all types of equipment and units, and is also employed to create obstacles when and where needed. Additionally, it has the speed and mobility to keep pace with our combat forces and it provides its crew with armor and chemical agent protection to improve survivability on the lethal battlefield of today and tomorrow.

Another major component in our combat arsenal, which complements the capabilities of our ground forces, is the attack helicopter. This weapon will play a major role in any situation which requires a rapid response to an enemy threat or an opportunity to exploit a developing tactical advantage. The AH-1 Cobra helicopter, a proven system, is being upgraded to enhance its survivability on the modern battlefield. The Cobra however, is essentially a daylight aircraft with limited performance capabilities in some altitudes and climates. These limitations make it less than optimal for the many environments in which our Army may be called upon to fight.

In addition to upgrading the Cobra attack helicopter, we are procuring the Apache attack helicopter which, from its inception, was designed to operate anywhere in the world. The Apache's agility enables its crew to take maximum advantage of the environment to avoid detection. A target-acquisition-and-designation sight and a night-vision sensor enable the Apache to attack regardless of visibility restrictions. The Hellfire missile, with which the Apache will be equipped, is a laser-guided missile capable of delivering both direct and indirect fire. Hellfire is faster, has greater range, and is more lethal than the TOW missile. Armed with the Hellfire missile and a 30-millimeter chain gun, the Apache brings an awesome combination of lethality and versatility to the modern battlefield.

Another integral portion of our Land Power might is artillery firepower, a vital factor in opposing a numerically superior force. Our land forces must be able to shoot deep into the enemy's rear areas with great accuracy and massive firepower, while simultaneously striking enemy targets which are engaging our front-line units with direct and indirect fire.

The Army's longest range weapon is Pershing II, a solid-fueled, two stage, nuclear-capable, ballistic missile designed to strike high-threat, time-sensitive enemy targets. Its sophisticated radar terminal guidance system, which automatically makes in-flight corrections, will result in pinpoint accuracy and permits use of smaller nuclear warheads than were required with older, less efficient systems. Truck-mounted and highly mobile, the Pershing II will be a survivable and powerful addition to our deterrent posture and our fighting capability.

For direct support of our front line forces, the Army is procuring the Multiple Launch Rocket System (MLRS). A free-flight, area fire weapon system, the MLRS will fill a void in our current indirect fire capability. Designed to suppress enemy air defenses and provide artillery counter-fire, the MLRS delivers large volumes of munitions against time-sensitive targets in a minimum amount of time. Because we are developing MLRS with the United Kingdom, France, Italy, and Germany, we are achieving cost effectiveness while enhancing modernization and near-term combat readiness of NATO forces through procurement of common systems.

In preparing for the battles of today and tomorrow, within fiscal limitations, we realize that we must strike a balance between modernization and near-term readiness and build on those systems already in the inventory. An example of our efforts in this regard is the M-60 series tank. A product of late-1950's technology, this basic weapons system will continue to see service well into the 1990's at the low end of our high-low technology mix. The latest version of this system, the M60A3, has a laser range-finder, thermal sights which penetrate darkness and obscurants, and a ballistic computer. The result of our improvement efforts is a 20-year old tank which continues to be a formidable weapon on today's battlefield.

While the Army's materiel acquisition philosophy recognizes the importance of improving fielded systems whenever feasible, it also recognizes that the potential for improvement of a given system is limited. Air defense systems illustrate this situation.

On the battlefields of today and tomorrow, Soviet fixed and rotary wing aircraft present a significant threat to our land forces. Some of our current air defense systems were not designed to function in today's electronic countermeasures environment, nor are they capable of multiple target track and engagement. The technology that provides these capabilities today did not exist 20 years ago. Patriot, the SGT York division air defense (DIVAD) gun, and Stinger--products of more modern technology--are ready to fill the gaps where older systems are inadequate and where the potential for product improvement has been exhausted.

The Patriot is the Army's new all-weather, long-range, surface- to-air missile system. This weapon can simultaneously attack and destroy several enemy aircraft while tracking scores more. Capable of operating under intense electronic jamming conditions which will characterize the battlefield of the future, the Patriot has sophisticated radar guidance features and a proximity fuzed warhead. In comparison with the systems it is replacing, Patriot has greater reliability and achieves a dramatic increase in operational effectiveness.

An important system in the air defense family of weapons is the Improved Hawk (IHawk) missile which provides large area coverage for air bases and facilities in NATO's rear areas. Improved spare parts availability and the Army's program to apply product improvements to this already developed and proven system will assure its effectiveness against the evolving threat well into the 1990s.

The self-propelled Chaparral, the Army's short-range air defense missile system, was first fielded in 1969. It will remain in the Active Army inventory through the 1990's and will be provided to Reserve Components beginning in 1984. A towed version, which enhances strategic mobility, is being developed for light forces. Chaparral has already undergone significant modifications to maintain its effectiveness, and further development will provide increased engagement range while reducing its vulnerability to enemy countermeasures.

Complementing the capabilities of the Chaparral is the 40-millimeter SGT York DIVAD gun. This system provides our heavy divisions with a modern anti-aircraft weapon which can maneuver with front line units and engage sophisticated aircraft. The SGT York is a survivable, radar-controlled system, which is capable of defeating high-performance aircraft as well as the Soviet HIND attack helicopter.

Fielding of the Stinger air defense missile, the Army's first new manportable air defense system since the late 1960s, adds a significant capability to our land forces. Development of a second generation of this missile with an improved guidance system designed to overcome enemy countermeasures has been completed. Called Stinger-POST (passive optical seeker technique), this improved weapon is scheduled to enter production in FY 83.

It is important to note that systems improvements have the potential to benefit not only our own Army but also those of our allies and friends. The Army has embarked on an effort to improve the combat capabilities of older, U. S.-origin equipment and munitions. These initiatives focus on anti-armor, anti-air, command, control, communications and intelligence (C^3I), and other systems which can be upgraded using either current modifications or emerging technologies which promise near-term results. Improvements which result will be applied to our own equipment within the framework of our overall modernization program and will also be available to our allies and friends through Security Assistance and Foreign Military Sales programs. Countries with adequate industrial capabilities may request co-production authority.

We emphasize that our efforts to modernize our forces and improve near- and mid-term readiness apply both to our Active and Reserve Components and to our allies. Today, there are units--Active, National Guard and Army Reserve--which simply do not have all of the arms and equipment they are authorized and need to fulfill their missions. We are working to meet these requirements.

In the FY 82 Army budget, $760 million was allocated for procurement of new equipment for the Reserve Components. These funds are being used to procure 63 Abrams tanks, 12 improved Cobra-TOW helicopters, 226 field artillery battery computer systems, 131 155-millimeter howitzers, and 878 5-ton cargo trucks. For FY 83, we have allocated $630 million for Reserve Component equipment procurement, and are seeking $900 million in the FY 84 budget request for this purpose. Early-deploying Reserve Component units are receiving and will continue to receive new and improved systems that cover the full spectrum of mission needs, including the Abrams tank, the Bradley fighting vehicle, and the Roland and Stinger air defense systems. We are providing equipment to the Total Army--Active and Reserve Components alike--according to the order of deployment in a national emergency. The first units to deploy, regardless of component, are the first equipped and modernized. Our long-term objective is a total force that is capable of handling any task which it is assigned.

SUSTAINING THE FORCE

Sustaining our land forces is a function of our ability to supply and resupply weapons, equipment, and other materiel expended in combat operations. Since modern warfare would deplete equipment and stores faster than our peacetime industrial base could replace them, we must have principal war reserve stocks to sustain our forces until the production base can satisfy wartime demands. For example, it would take approximately two years for our production base to reach mobilization surge-rate production for systems such as the Abrams tank, the Blackhawk helicopter, and selected types of 155-millimeter artillery rounds, and more than one year to reach surge-rate production of TOW anti-tank missiles and some types of main-gun tank ammunition. Because of current fiscal constraints, acquisition of sufficient levels of principal war reserve items such as equipment, ammunition and fuel is unlikely to be attained in the near term.

Secondary war reserve items (i.e., spares, repair parts, rations, clothing, medical items, etc.) are required to maintain weapons systems and support the individual soldier in combat. As with primary war reserve weapons and equipment, we are able to buy only limited amounts of secondary war reserve items. Our current effort, albeit small, is the beginning of a long-term program to improve the sustainability of our ground forces beginning with the most critical items.

The depot maintenance program makes an important contribution to the Army's peacetime operations, training, and warfighting capabilities by overhauling and modifying equipment and supporting the Total Army with maintenance and engineering services. Maintenance is also a significant activity involved in the fielding and sustaining of new weapons systems. In FY 82, the Army initiated a successful effort to fully finance all required hardware maintenance each year. In FY 83 and FY 84, the prudent risk of deferring some maintenance for the near-term must be taken in order to afford other high priority modernization and readiness initiatives. The hardware maintenance unfunded requirement will grow to $203 million in FY 84, while maintenance support functions remain underfunded by $287 million.

The Army lacks critical support units in the Active Force, especially for the early days of a major crisis. Even after activation of Reserve Component forces, who supply the bulk of our combat support and combat service support units, significant force support shortfalls will exist. Even if our land forces had adequate stocks of serviceable equipment, sustaining the Army in a protracted conflict with American support units will be difficult. Our land forces need the help of allies and friends.

For the NATO scenario, we rely heavily on Host Nation Support to help alleviate critical logistic shortages during the early stages of conflict and to augment U. S. support forces without further straining limited strategic mobility assets. Host Nation Support represents a critical burden-sharing initiative to improve our conventional warfighting capability in Europe by conserving U.S. manpower for combat units. Negotiations are continuing for further expansion of European Host Nation Support which is so essential to the combat capability of our land forces.

Another important burden-sharing initiative currently being pursued is the Master Restationing Plan (MRP) which will both improve the forward deployment of our combat units in Europe and accommodate our force modernization program. Funds for the MRP are not requested in the FY 84 budget because of our inability to arrange a satisfactory cost-sharing agreement; these efforts are continuing.

DEPLOYING THE ARMY

An Army, however well trained and equipped, cannot be effective if it fails to reach the battle area in a timely manner. Its effectiveness is denigrated if it cannot move supplies required to sustain the force once it is engaged. Effective deterrence and combat readiness are a reality only if strategic and tactical transportation assets are available and adequate to meet the strategic deployment challenge.

The strategic deployment challenge extends beyond the problem of transporting forces from a point of embarkation to an objective area in the country of intended employment. Strategic deployment is an aggregate process involving several related activities including premobilization planning, actual mobilization, movement to air and seaports of embarkation, air and seaport activities, inter-theater movement, intra-theater transportation to forward deployment areas, and resupply of deployed forces in all phases of operations involving strategic deployment.

During the past year, we have continued to improve deployability by reducing actual mobilization and assembly times of Reserve Components through enhanced individual and unit training, equipment modernization, and better planning. Continued deployment of Reserve Component units to the National Training Center, as well as other deployment exercises, helped to identify and correct potential problems and planning shortfalls. FY 82 and FY 83 funds are being used to develop mobilization master plans and installation support books for mobilization facilities.

Many of the recent improvements in strategic deployability involve units designated for possible employment with the early deploying Army units. Multi-year projects currently underway include upgrading of outloading facilities at military installations, procurement of tie-down and packing material to enable units to move to ports and airfields, installation of lights for night loading and identification of rail assets for emergency deployment. We are also working closely with the Navy in the Logistics-Over-the-Shore (LOTS) Program to develop systems and acquire equipment for moving units and supplies from ships to the beach in areas such as Southwest Asia where port facilities are either inadequate or non-existent.

As a result of training and facility improvements, the Active and Reserve Components of the Army are ready to move to an objective area to deter conflict or to fight. Unfortunately, the strategic mobility assets needed to deploy the Army remain inadequate. For over a decade, our Nation's strategic airlift and sealift forces have suffered from neglect, and only recently has this unfortunate trend been reversed.

In conjunction with the Navy and the Air Force, we are seeking near-term procurement of strategic airlift and sealift assets to deploy and sustain the Army. Programed conversion of four SL-7 container ships to a roll on-roll off configuration will not be completed until 1986, delaying acquisition of a capability which is needed today. The U. S. flag Merchant Marine fleet continues to decline in strength, further reducing rapidly-available sealift assets. Immediate acquisition of adequate sealift capabilities is necessary. Procurement of the C5B and KC-10 cargo aircraft, and development and procurement of adequate numbers of direct-delivery, large-capacity, intratheater aircraft to support our front line units is an initiative which receives our strongest support.

The lack of strategic mobility assets is offset in part by prepositioning equipment and supplies in the European theater. Prepositioning of Materiel Configured to Unit Sets (POMCUS), initiated in 1961, is a program designed to reduce strategic mobility requirements for the European scenario in times of crises. By forward positioning a majority of a unit's organizational equipment, only unit personnel with minimum equipment must be transported to Europe during periods when there are high demands on limited mobility resources. Today, POMCUS consists of four division sets of equipment, although the Army program is for six division sets. NATO infrastructure funds are currently being expended to construct sites for POMCUS sets five and six.

ECONOMIES AND EFFICIENCIES

Recognizing the obligation to manage our assets well, the elements of the Total Army have actively participated in a series of initiatives to reduce all but essential expenditures. Army resource management activities are effective and are becoming increasingly more efficient. We are focusing our efforts on several areas to further improve asset management measures. As an example, acquisition management for major weapons systems continues to receive the highest priority in controlling costs; the methods of operating our installations and facilities are undergoing detailed analysis to assure effective and efficient performance; and we have strengthened our internal controls to reduce vulnerability to fraud, waste and abuse.

In 1981, the Army formed a Cost Discipline Advisory Committee which was given the task of developing specific recommendations to control program costs. All five members of the committee were senior civilian executives, including two who had prior long-term, high-level service with the Department of the Army in financial management and materiel acquisition. The committee developed a total of 50 initiatives which were designed to reduce costs and shorten the acquisition process. We have emphasized improving the transitions from development to production, more closely coordinating the acquisition and budget process, and early identification of potential problems in major procurement programs.

We have already implemented many of the Cost Discipline Advisory Committee initiatives. Supervised by the Under Secretary of the Army, an individual with extensive managerial experience in industry, these initiatives have improved our fiscal management procedures. An indicator of this improvement may be seen in the reduction of Selected Acquisition Report (SAR) systems that breached a unit cost threshold under the FY 82 Nunn Amendment and the FY 83 Nunn-McCurdy Amendment. In the first quarter of FY 82, we experienced unit cost threshold breaches on five SAR systems. During the first quarter of FY 83, only one SAR system breached the threshold.

The Defense Acquisition Improvement Program (DAIP), introduced in 1981, complements the Army's cost discipline efforts. Key segments of the DAIP include program stability, pre-planned product improvement (P^3I), multi-year procurement and obtaining economic production rates for major programs.

Pre-planned product improvements reduce development risks and costs, extend system life and increase the return on fielded systems. The Army has currently identified eight major weapons systems for improvement as alternatives to developing new systems. P^3I is not a new program for the Total Army, as fielding of the TOW 2 anti-armor missile graphically demonstrates. However, formal incorporation of P^3I procedures into Army management systems will assure consideration of potential cost savings for all future procurements.

Multi-year procurement is another major cost reduction initiative. The Army planned to award eight multi-year contracts for FY 83 which would procure economic quantities of materiel through commitment of advanced procurement funds. As a result of the Continuing Resolution Authority, execution of five contracts was delayed with associated reductions in cost avoidance. The continued absence of fully approved budgets at the beginning of a fiscal year and delayed approval of supplemental requests diminishes cost savings.

The Army Economies, Efficiencies and Management Improvement (EEMI) Program was initiated in FY 82 in an effort to maximize the impact of each budget dollar through increased productivity, cost control, and the application of proven management practices to fiscal activities. Savings and cost avoidance will be reported annually and are projected to be approximately $8 billion through FY 88.

In direct support of EEMI programs, the Army is investing funds to modernize tools, equipment, and facilities for in-house production. These product initiatives, such as a $26,000 purchase of an infectious waste disposal system which saves nearly $326,000 annually, are estimated to produce a return of $10 for each $1 invested. The Value Engineering Management Program, part of EEMI which seeks to identify and remove unnecessary costs from parts, services, maintenance and procedures without degradation of quality, has been averaging a return of $15 for each dollar invested. Value Engineering produced savings of $37 million in FY 82, and savings of $435 million are projected through FY 88.

The Army debt collection program, as well as the program to reduce vulnerability to fraud, waste and abuse, continues to produce long-term dividends for the Army. Establishment of a fraud, waste and abuse hotline reinforces the concept that efficient management of Army resources is everyone's business. The Army Audit Agency monitors acquisition, research and development, communications, intelligence and club activities, as well as other selected areas where occurrence of fraud, waste and abuse seems most probable. Additionally, educational programs are being developed to make personnel aware of their responsibility to conserve Army resources.

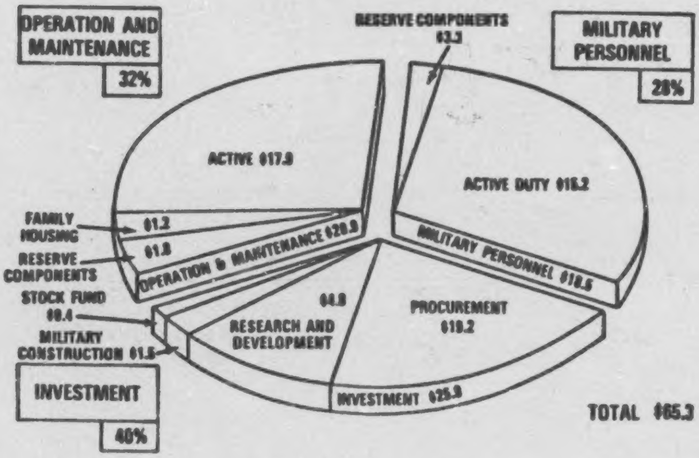
THE ARMY OF THE FUTURE AND THE FY 84 BUDGET

> "New conditions require for solution and new weapons require for maximum application new and imaginative methods. Wars are never won in the past."
>
> -- General Douglas MacArthur

Having provided an accounting of our stewardship of today's Army, it is now appropriate to turn our attention to the Army of tomorrow. This section will focus on the major programs contained in the FY 84 budget request--programs designed to improve readiness today while simultaneously preparing the Army for the challenges of tomorrow.

Requested programs are based on the minimum requirements for our Land Power to deter or defeat the enemy threat. Desirable but less-urgent programs have been deleted and some necessary programs have been delayed. The following section points out, in conjunction with the budget annex, where requested FY 84 resources have been programed. In designing this budget, which is summarized in the following chart, a careful balance between today's and tomorrow's needs has been struck.

THE ARMY BUDGET REQUEST
FISCAL YEAR 1984
($ IN BILLIONS)



The operation and maintenance request for the Total Army, active and reserve, is for $20.9 billion or approximately 32 percent of the total budget. Personnel accounts require $18.5 billion or approximately 28 percent of the total, a decline from 29 percent in the FY 83 budget request. The Army's investment in the future has increased from 39 to 40 percent of the total request when compared to FY 83. These funds, intended for procurement, military construction, and research and development, amount to $25.9 billion.

The total obligational authority requested by the Army for FY 84 is $65.3 billion, but still falls short of the amount necessary to meet all the requirements imposed by national strategy. The transition to the Army of tomorrow requires sustained support of modernization and equipping efforts which we have already started. This future support must be at expenditure levels comparable to the FY 84 budget. An adequate defense does not come cheaply. In the words of Thomas Paine, "Those who expect to reap the blessings of freedom must undergo the fatigue of supporting it."

THE ARMY OF TOMORROW

The Army of tomorrow is being shaped and developed today. Long lead times for weapons procurement, as well as organization and doctrine changes, demand that we effectively and efficiently move toward achieving our future goals. Because of the numerous initiatives we are pursuing in terms of future developments, this report will deal only with our major efforts to establish a credible Land Power deterrent and fighting force for the future.

STRUCTURING THE FORCE

The force structure changes programed for FY 84, described below, do not meet the needs of the Total Army. Problems relating to the capability of the Army to support its fighting elements--the "tooth-to-tail" ratio--still exist. The Total Army's force structure shortfalls cannot be remedied in the near term within current budget constraints. Continued support of force structure improvements is necessary to provide a combat ready, deployable, supportable force for the Army of today as well as for the Army of tomorrow.

During FY 84, our Total Army will be restructured from the current 24-division force to 25 divisions through the addition of a National Guard division formed from three existing National Guard brigades. Nine of the 25 divisions in the Total Army at the end of FY 84 will be manned by National Guardsmen.

In addition, four of the 16 Active Component divisions will have National Guard roundout brigades. One of these National Guard Brigades is itself rounded out by an Army Reserve infantry battalion, and an Army Reserve armor battalion rounds out another Active Component Infantry Division. Most of the Army's armored cavalry regiments, separate combat brigades and combat service support organizations will continue to be Army Reserve and Army National Guard units.

The internal organization of the 16 Active Army divisions will continue to undergo changes during FY 84. As a result of the Army-86 studies, organizational changes will be made to maximize the effectiveness of new weapons systems. During FY 82 and FY 83, those divisional units which received the Abrams tank and the Bradley fighting vehicle converted to new organizational structures. In FY 84, most of our remaining Active Component divisional combat units will convert to the new organizations even though they retain their current, older equipment. The FY 84 reorganizations will assure commonality of doctrine and structure among similar units Army-wide and will facilitate the introduction of new weapons systems into the Army inventory.

In conjunction with Active Army reorganizations, 63 units will be inactivated and 38 units will be activated in FY 84 to support other force structure changes. The inactivations, which include 18 battalion-size units and 45 units of company size and smaller, are associated with initiatives to transfer more force structure to the Reserve Components and the conversion of 10 divisions to the new, heavy-division configuration.

Activations consist of combat, support, air defense, and Special Forces units. The 7 battalion activations include a divisional attack helicopter battalion, three divisional support battalions, two Special Forces battalions, and a Patriot air defense battalion. The 24 company activations include nine ammunition, four air defense, three communications, two each chemical and Special Forces, and one each aviation, maintenance, military intelligence and transportation. The remaining activations are detachment-size signal, maintenance and transportation units.

The importance of Special Operations Forces in this day and age must not be understated. They provide a variety of unique capabilities at the low end of the conflict spectrum which are not duplicated by other conventional units and which may preclude conflict or prevent a small incident from escalating into a larger conflict. The addition of a Special Forces Group headquarters and headquarters company, two Special Forces battalions and a Special Forces company to the force structure in FY 84 will provide the Total Army with four Active and four Reserve Component Special Forces Groups.

Establishment of the 1st Special Operations Command (SOCOM) at Fort Bragg, North Carolina in 1982 was a major step forward in uniting command activities and improving coordination among special mission units. The 1st SOCOM has the responsibility to train special operations forces in internal defense, psychological operations, strike operations, unconventional warfare, strategic intelligence, and ranger techniques, and will supervise and sustain these forces as appropriate.

Headquarters, Third United States Army was also activated this past year. It functions as the Army Component Headquarters for the new United States Central Command (USCENTCOM), which has responsibility for planning and operational matters in Southwest Asia. This command evolved from the Rapid Deployment Joint Task Force (RDJTF) which had been formed in 1980 to improve U. S. power-projection capabilities around the world. Activation of the Third U. S. Army Headquarters substantially lessens the planning responsibilities of our division and corps tactical headquarters, allowing them to concentrate on their primary mission of increasing readiness and preparing to fight.

SOLDIER PROGRAMS

Men and women join and stay in the Army for a variety of reasons, including patriotism, professional and personal growth, and a desire for travel and adventure. Our soldiers understand, however, that military service may involve hardship, deprivation and danger. Because of the job environment and conditions of service, our soldiers expect and are entitled to decent living and working conditions, and security for themselves and their families. Acquisition and retention of quality soldiers is a major factor in developing the Army of the future, and significant planning efforts are devoted to soldier-related issues and programs.

A major concern of our soldiers is their ability to provide an acceptable degree of financial security for themselves and their families. In order to attract and retain the quality soldiers we need today and tomorrow, we must provide the men and women who constitute the Total Army at least pay comparability with the private sector. The Army received a 4-percent pay raise and an associated Variable Housing Allowance pay cap in FY 83, even though the private sector wage growth was between 8 and 9 percent. While we understand the rationale behind the administration's decision that there will be no pay increase in FY 84, we support the position articulated by the Secretary of Defense that full pay comparability must be restored in FY 85. Additionally, action must be taken to reduce the out-of-pocket expenses incurred by soldiers in conjunction with permanent change of station (PCS) orders by increasing monetary allowance in lieu of transportation (MALT), increasing weight allowances for household goods, and providing temporary lodging expenses.

Another primary concern of soldiers is medical care for themselves and their families. This Nation owes the best possible medical and dental care obtainable to those who are currently serving and those who have served.

The active duty physician shortage is being reduced by a variety of initiatives including the Army's Graduate Medical Education Program and the Health Professions Scholarship Program. Continued funding of these initiatives is essential to assure that the Army's medical requirements can be met. While our peacetime active duty physician strength is acceptable, significant wartime shortages still exist--primarily in the Reserve Components. In terms of wartime requirements, we are short more than 3,200 physicians. Recruitment and retention initiatives are being developed to resolve this problem.

In addition to medical personnel shortages, the Army has significant shortages of deployable medical systems, as evidenced in recent deployment exercises. Steps are being taken to incrementally eliminate these shortages; according to current programing, equipment shortfalls will not be eliminated until FY 89.

Health benefits for active duty families, retirees, and retiree families are a part of the compensation package which attracts and retains quality personnel in the Army. These benefits, whether provided by military facilities or through the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS), must be comparable to that provided to employees in the civilian sector. Maintenance of health and benefit programs at current levels is essential. FY 84 budget proposals permit minimal program growth and only maintain the existing level of medical services.

Competitive pay and adequate medical care meet two primary concerns of our soldiers. Another area of significant importance to our soldiers and their families is the quality of facilities in which they live. The continual imposition of harsh living environments on soldiers' families results in many soldiers curtailing promising careers. Adequate family housing is essential, but has been severely underfunded for a number of years. The FY 84 budget request reverses this unfortunate trend and provides money to reduce maintenance and construction backlogs in all areas of family housing. If fully funded, the FY 84 request will meet annual fixed costs to operate and maintain current assets and will increase foreign leases and construction to support forward-deployed soldiers and their families. Additionally, the request contains provisions for funds to reduce large backlogs in deferred maintenance and repairs and to provide construction projects at CONUS installations where severe housing shortfalls exist.

Housing for unaccompanied personnel is also a matter of concern to the Army. Of the total shortfall of approximately 110,000 spaces both in CONUS and overseas, the FY 84 budget includes funds to construct living facilities for 6,500 people. This is very modest progress on a long overdue program.

Hand-in-hand with the requirement for better living facilities is the need to improve the work environment. The FY 84 budget request sustains the maintenance and repair effort needed to fix the facilities used by all Army activities. The recurring requirements generated annually as a result of aging facilities, as well as wear-and-tear on real property, must be met. Additionally, we must reduce the backlog of maintenance and repair projects which has been growing in geometrical proportions over the past decade.

Construction of critically needed maintenance facilities, especially outside CONUS, has long been deferred. Unit vehicle and equipment maintenance is still accomplished outdoors in some areas of Europe and Korea. The Army FY 84 budget request for this category is $374 million against a backlog of over $3 billion.

In addition to improved living and working conditions, improvements to community facilities are required to support our soldiers. We urgently need more physical fitness centers to support the Total Army physical fitness program. Chapels and chapel facilities are required so that we can provide programs which promote moral development and character building of our soldiers and their families. Many of our existing child-care centers, essential components of our quality of life programs, are unsafe and need replacement. Skill development centers, libraries, theaters and recreational programs provide a respite from training, particularly in overseas areas where recreational opportunities are minimal or not affordable. Recreational programs and physical activities are constructive alternatives to drug and alcohol abuse and create a wholesome environment for our soldiers and their families.

WEAPONS SYSTEMS FOR TOMORROW

The Army will continue its efforts to improve readiness and modernize the force in FY 84. Readiness depends largely on seeing that our soldiers have the arms and equipment they need, and reduction of materiel shortages will have the highest priority. We are not attempting to match the Soviets system for system, but instead are seeking qualitative advantages. In FY 84, we will continue to buy current systems, improve them when possible, and procure modernization systems when necessary. A full exposition of our procurement programs is contained in the detailed budget submission. Selected programs, which provide critical battlefield capabilities, are discussed below.

The Army will continue to purchase the Abrams tank and the Bradley fighting vehicle in FY 84. We are requesting funds to procure 720 tanks and 600 BFV's as part of our overall force modernization plans.

The Apache attack helicopter procurement program is entering its third year. As indicated in our budget request, we are planning to purchase 112 aircraft in FY 84. We are also seeking continued procurement of the Hellfire missile, which makes the Apache such a lethal weapons system. Additionally, funds are requested for maintenance and acquisition of tools and spare parts for the Apache as well as for pilot and maintenance training. As with all weapons systems, funding of the total support package is essential if the weapon is to achieve its full combat potential on tomorrow's battlefield.

Procurement of artillery systems will continue in FY 84 to provide indirect fire support for committed land forces. This procurement is not limited to firing systems but also includes target acquisition and fire control systems.

Acquisition of the Army's Multiple Launch Rocket System (MLRS) remains on schedule with a proposed total program acquisition systems cost projected to be below the original 1978 planning estimate. The Battery Computer System (BCS) increases the speed and accuracy with which artillery fire can be delivered on target, and procurement of this system is proceeding under the terms of a multi-year contract. The Ground Laser Locator Designator which enables us to achieve first round fire-for-effect on targets with both conventional and precision guided munitions is scheduled to be distributed to European combat units in FY 84.

Interdiction of high-value second echelon targets is of great concern to American Land Power. To facilitate accomplishment of this interdiction mission, we are developing a combination of mutually supporting sensor and computer based display devices which can detect and classify movement of personnel and wheeled and tracked vehicles at ranges up to 100 kilometers. The Remotely Monitored Battlefield Sensor System (REMBASS), with the use of data relays, will provide targeting data at extended ranges so that we can engage enemy formations before they reach the front-line battle area. Funds for acquisition of REMBASS hand-emplaced sensors are requested in the FY 84 budget. Air-delivered sensors are projected for joint Army-Marine Corps development commencing in FY 85.

Tactical nuclear weapons, a major force-multiplier in our deterrence and warfighting capabilities, need modernization. Weapons incorporating technology which is more than 20-years old must be replaced to assure reliability and effectiveness. FY 84 programs for theater nuclear force modernization include continued procurement of the 8-inch nuclear artillery projectile as well as development of a new 155-millimeter nuclear projectile. These programs, if fully funded, will continue to provide us with a credible theater nuclear force.

Pershing II is a critical weapons system which counters the buildup of Soviet nuclear forces. It not only gives our Land Power a significant, deep-attack warfighting capability but also provides the Soviet Union a strong incentive to negotiate an arms control agreement. Failure to receive procurement funding for the Pershing II missile in FY 83 will delay the full operational capability of the system by approximately 18 months. We are planning to request supplemental FY 83 funding for the Pershing II program when additional flight-test data becomes available.

Procurement of air defense weapons systems, a necessary component of Land Power's total fighting effectiveness, also continues in FY 84. Stinger-POST--our improved, shoulder-fired, manportable air defense missile--is entering production in this fiscal year and we intend to continue procurement during FY 84. Funds are requested in the FY 84 budget to implement an accelerated cost-savings acquisition program for the SGT York divisional air defense gun. Finally, to provide balanced development of our family of air defense weapons and thereby provide all-weather, all-threat coverage, the Army is requesting funds in FY 84 to procure 15 firing units and associated missiles for the highly lethal Patriot missile system.

The Soviet Union possesses a formidable and expanding chemical warfare capability and continues to devote significant resources to research and development of chemical warfare programs. To meet this threat, the Army must have a chemical retaliatory capability for deterrence and the capability to respond effectively with chemical weapons if deterrence fails. Funds for initial procurement of 155-millimeter binary munitions are requested in the FY 84 budget. Congressional support of this program is important since our current stockpile of chemical weapons is old and many munitions are not useable.

We are seeking funds in FY 84 to award a contract for the M9 Armored Combat Earthmover (ACE). A multi-year, competitive procurement contract for nearly 1,400 vehicles is planned to achieve maximum cost effectiveness.

In accordance with congressional guidance, the Army will conduct in FY 83 a competitive evaluation of light anti-tank weapons (LAW). Five competitive systems, as well as the Viper and the current M-72 LAW, will be considered. It is our intention to report the results of this competition to Congress by the end of FY 83.

SUPPLYING OUR LAND FORCES

In the past, America's land forces have had the luxury of avoiding full-scale commitment to land warfare until a bridge of supplies could be established to sustain the combat needs of the soldiers. We cannot assume either a short war scenario or adequate warning time for future conflicts. There is no substitute for stocks on hand. A portion of our FY 84 budget request, albeit less than desirable, is devoted toward improving our current supply status. Selected elements of our program requests for FY 84 are discussed below.

We are concerned about the ability of the industrial base to support wartime requirements. Presently, only about 25 percent of the Army's hardware items can be produced at rates equaling mobilization requirements before the sixth month of hostilities. As mentioned earlier, up to 2 years may be required to reactivate or build sufficient production capacity to meet sustained combat consumption rates. The Army is continuing its modernization of Army-owned industrial base facilities and is exploring methods of enhancing civilian surge capabilities.

Funds for improving the asset posture of major items and ammunition war reserve stocks are contained in the FY 84 budget request. These stocks are necessary to offset shortfalls in strategic mobility and to support worldwide commitment of our land forces. Ammunition stockage objectives in Europe are being reviewed in light of a shortage of storage space and the fielding of new close combat systems in the FY 84-88 timeframe.

The FY 84 budget requests $254.5 million to buy stock fund war reserve commodities such as chemical defense equipment, cold weather clothing, critical spares and repair parts, and medical and dental equipment. Total war reserve procurement requests do not eliminate shortfalls but represent a long-term program to improve the sustainability of U. S. Land Power beginning with the most critical items.

In addition to acquiring and modernizing machines and stocks, the Army is actively seeking to provide necessary clothing and individual equipment to protect the soldier from a wide array of battlefield threats. In particular, research efforts continue to incorporate chemical, biological, ballistic, flame and camouflage protection into a single combat uniform. An evaluation process to select a new combat boot is underway. Other items of development include cold weather air crew uniforms, laser and ballistic eye protection devices and a multipurpose overboot for both environmental and chemical protection. During FY 84, hearing protection equipment and body armor for explosive ordnance disposal personnel will be acquired. The new items of equipment to be developed and acquired are designed to protect land forces from both environmental extremes and lethal battlefield hazards.

RESEARCH AND DEVELOPMENT

Research and development (R&D) dollars are the key to future combat power. The importance of an adequate R&D program as we transition to the battlefield of tomorrow cannot be understated. The magnitude of past Soviet investments has greatly improved the quality of their weapons. For an army which will have to fight outnumbered, quality of weapons and modern technology is important to us. Our FY 84 research and development effort is designed to assure that we have a technological edge on the battlefield of tomorrow.

Our R&D efforts are oriented toward taking advantage of America's technological strengths. To meet the challenge of the future, we are placing greater emphasis on leverage technologies which have the potential for revolutionary changes and improvements in military capabilities. Examples of such technologies are high speed integrated circuits, integrated optics, microelectronics, and bio-technologies. It should be emphasized, however, that the current effort is primarily oriented toward developing technology demonstrators and not weapons prototypes. Only after the military application of a specific technological demonstrator is established will the Army be able to make decisions concerning future development and procurement of systems using new technology.

While looking to the future in our R&D effort, we must not lose sight of what we are doing today. There must be an intimate association between those who look to the far horizons and those who deal with today's problems. To achieve this interface, the Army is developing a Center for Innovative Excellence at the California Institute of Technology's Jet Propulsion Laboratory. The center will meet a need for forward-looking policy and technical studies to support the Army of the future; will provide continuing advice on how to expand contemporary military thought; and will be a point of contact and interface with external research organizations.

An area of future development demanding specific and immediate attention is that of ballistic missile defense (BMD). As a result of a continuous, broad-based research and development effort, a number of evolutionary system options are available for full-scale development. One generic system concept being examined could fulfill the Army's mission of providing land-based defense for intercontinental ballistic missiles and other strategic assets. Continued adequate funding of research and development for BMD is strongly urged both to keep pace with modern technology and to provide options for a viable, active BMD capability should the need arise.

The Army of the future requires for its survival the capability to detect and locate ground-moving targets, command posts, assembly areas, and low-flying helicopters and fixed-wing aircraft. In conjunction with the Air Force, the Army is developing the Joint Surveillance and Target Attack Radar System (JOINT STARS), which is based on a merger of technology developed for the Army Battlefield Data System and the Air Force PAVE MOVER program. A primary advantage of the system will be the simultaneous broadcast of intelligence data to multiple ground stations throughout the battle area.

The Army's future reconnaissance and target acquisition capability will be enhanced by the remotely piloted vehicle (RPV). Because a potential enemy's air defense capability could make manned flights penetrating into his rear area risky, an RPV with low-light television and a forward-looking infrared night vision sensor is the ideal platform for providing real time information on front line and second echelon enemy troop dispositions. The RPV also will have the capability to adjust artillery fire and designate targets for laser-terminated precision-guided munitions.

To utilize effectively envisioned target acquisition capabilities, the Army requires a corps-level fire support system with range capabilities which exceed current cannons and rockets; which can be armed with conventional, chemical or nuclear warheads; and which can destroy, neutralize or delay the enemy's second echelon reinforcement capability before it reaches the front-line battle area. In conjunction with the Air Force, and within the framework of the AirLand Battle concept, the Army is engaged in an effort to merge requirements for this corps support system with a proposed Air Force conventional stand-off weapon to be called the Joint Tactical Missile System.

Another multi-service initiative supported by the Army is the Joint Advanced Vertical Lift Aircraft (JVX) program which will provide a common airframe to the services for a variety of purposes. The Army will utilize JVX for special electronic and airborne intelligence and for medical evacuation purposes; the Marine Corps will use it for medium assault. It will be a combat search and rescue aircraft for the Air Force and Navy, and an Air Force long-range special operations aircraft. The JVX will be unique in combining vertical take-off and landing capability of the helicopter with the speed and range of a fixed-wing aircraft. Production of the JVX, scheduled for 1989, will provide a versatile aircraft with which to support the Army of the future on tomorrow's battlefield.

Survival of Land Power on the battlefield of the future will require extensive protection against chemical weapons. The FY 84 budget continues efforts to develop improved NBC defense material and to reduce the significant degradation of military performance in a chemical warfare environment. Long-term research and development programs are required to develop follow-on protective systems for armored vehicles, new protective masks, secure command and control facilities, and rest areas for soldiers. Additionally, more reliable and advanced chemical detectors are needed as well as improved methods of decontamination.

Long-term economies can be achieved by the Total Army through development and acquisition of battlefield simulators. Our interest and investment in training simulators is increasing. Simulators conserve fuel, ammunition and space. They also reduce wear and tear on weapons and equipment and generally decrease training and operating costs. Further, simulators offer training that cannot be duplicated because of safety and cost limitations. Malfunctions can be simulated, events frozen and procedures demonstrated until competence is developed. In FY 84, we will procure a variety of simulators to enhance our overall training and readiness.

Another area which has great potential for future development is that of artificial intelligence and robotics. Five primary areas employing this relatively undeveloped technology are being explored. The thrust of this research is to develop nearly autonomous robot operation of vehicles or equipment for ground reconnaissance, ammunition loading, information interpretation, training and maintenance, and medical diagnostics. Robots will possess extremely sophisticated decision-making microelectronic software. While some minimal human control will be required, the potential for human and cost savings as a result of this technology is enormous. Robot manned weapons systems which would have the capability to "recognize" and engage an enemy without direct and immediate human support represents just one possible application of this new technology.

In an era of government austerity, reduction of research and development budgets has become a tradition. President John Kennedy said, "Problems of immediacy always have the advantage of attracting notice. Those that lie in the future fare poorly in the competition for attention and money." The Army's research and development request presented in the FY 84 budget includes only those programs which are most essential if the Army is to continue to be a realistic deterrent and effective fighting force on tomorrow's battlefield.

CONCLUSIONS

The Army fiscal year 1984 budget request, outlined in the attached annex and referred to frequently throughout this report, is austere in terms of current and projected requirements. It has been formulated in light of the congressional obligation to provide for the needs of the Nation and to support our sister services. Substantial funds are requested because extensive modernization, equipping, and sustainability programs are needed both to improve combat readiness today and to prepare for the challenges facing tomorrow's Army.

There are many limitations in the Army FY 84 budget request. It does not allow continued modernization of our force at the desired rate, nor does it provide all the manpower we need for the training base. Training ammunition requirements remain underfunded as do adequate family housing programs, maintenance backlog reduction and civilian manpower requirements. These are but a sample of the program shortfalls which are not met by the current budget request.

Because of long-lead times and fiscal constraints, the Army of today must continue modernizing if it is to be effective on tomorrow's battlefield. Our budget request does achieve our most important goal of force readiness and combat capability today, albiet with certain risks. However, long-term support of procurement programs must be constant if we are to continue to maintain current levels of combat readiness today while modernizing for the challenges of tomorrow.

The degree of respect that America enjoys in the world today is attributable in part to our Total Army, whose vitality and capability must be maintained. General Dwight Eisenhower once observed: "There is no bright future for the slack or fatuously complacent among nations. There is no security for those who shy at its burden. Security is the reason for the Army's existence." Areas of weakness in our Army must be eliminated, forces must be modernized, and readiness enhanced if the future security of America is to be guaranteed.

ANNEX A

BUDGET OVERVIEW

The Army FY 84 budget is $65.3 billion in total obligational authority (TOA), which requires budget authority (BA) of $65.1 billion and outlays of $59.0 billion. The following table shows the FY 84 request in current and constant dollars in comparison with FY 83 and FY 82.

Department of Army
Budget Comparison
($ in Billions)

Current Price	1982*	1983	% Increase 82-83	1984	% Increase 83-84
TOA	53.0	57.2	7.9%	65.3	14.2%
BA	53.1	56.6	6.6%	65.1	15.0%
Outlays	45.3	52.2	15.2%	59.0	13.0%
Constant FY 1984 Price					
TOA	57.2	59.3	3.7%	65.3	10.1%
BA	57.3	58.7	2.4%	65.1	10.9%
Outlays	48.6	54.1	11.3%	59.0	9.1%

* Family Housing included in FY 82 totals for comparison.

FY 82 totals represent actual obligations and expenditures. FY 83 budget levels consist of amounts appropriated for the Army and reprograming adjustments.

The FY 84 request includes $62.6 billion before the Defense Subcommittee and $2.7 billion before the Military Construction Subcommittee. In addition, although not shown in the Army portion of the Defense budget, the Army's share of Defense appropriations for Retired Pay is $5.6 billion; and Claims, $.1 billion.

TABLE 1

ARMY BUDGET
($ in Millions)

	FY 82 ACTUAL	FY 83 ESTIMATE	FY 84 REQUEST
Military Personnel	16,602	17,551	18,517
Military Personnel, Army	14,020	14,605	15,215
National Guard Personnel, Army	1,511	1,699	1,915
Reserve Personnel, Army	1,071	1,247	1,387
Operation and Maintenance	16,770	17,880	19,667
Operation & Maintenance, Army	14,998	15,983	17,868
Operation & Maintenance, Army National Guard	1,105	1,191	1,135
Operation & Maintenance, Army Reserve	666	705	663
National Board for the Promotion of Rifle Practice	1	1	1
Army Family Housing	868*	977	1,241
Procurement	13,923	15,683	19,192
Aircraft Procurement, Army	1,966	2,487	3,472
Missiles Procurement, Army	2,131	2,267	3,089
Weapons & Tracked Combat Vehicles Procurement, Army	3,746	4,699	4,934
Ammunition Procurement, Army	2,323	2,122	2,334
Other Procurement, Army	3,707	4,108	5,363
National Guard Equipment, Army	50	0	0
Research, Development, Test and Evaluation	3,620	3,885	4,792
Military Construction	1,084	1,027	1,483
Military Construction, Army	951	930	1,375
Military Construction, Army National Guard	68	55	55
Military Construction, Army Reserve	65	42	53
Stock Fund	176	221	409
Stock Fund War Reserves	176	221	255
Peacetime Stock Fund Inventories	0	0	154
TOTAL PROGRAM **	53,041	57,223	65,299

* FY 82 Family Housing is included for comparison. Family Housing became an Army Appropriation in FY 83.

** May not add due to rounding.

MILITARY PERSONNEL -- $18.5 BILLION

The military personnel accounts provide for pay, subsistence, other allowances, and individual changes in duty stations for soldiers in the Active and Reserve Components.

Military Personnel, Army:

The FY 84 Military Personnel, Army (MPA) appropriation request is $15,215 million. Table 2 shows the Active Army military strengths and areas funded by the appropriation.

TABLE 2

Active Army Manpower Program
(End Strength)

	FY 82 ACTUAL	FY 83 ESTIMATE	FY 84 REQUEST
Officers	103,109	105,786	108,865
Enlisted	672,699	669,797	669,318
Cadets	4,583	4,417	4,417
TOTAL	780,391	780,000	782,600

Military Personnel, Army
($ in Millions)

	FY 82 ACTUAL	FY 83 ESTIMATE	FY 84 REQUEST
Pay and Allowances			
Officers	3,250	3,444	3,581
Enlisted	8,892	9,242	9,424
Cadets	31	32	32
Subsistence - Enlisted	883	904	971
Permanent Change of Station Travel	960	979	1,131
Other Military Personnel Costs	4	4	76
TOTAL PROGRAM	14,020	14,605	15,215

The FY 84 request of $15.2 billion provides for increases in officer and noncommissioned officer strength to support the approved Army force structure and to increase readiness. Discounting increases for inflation and unemployment compensation for former service members, real budget growth in FY 84 amounts to $.5 billion or about 3.6 percent. FY 84 compensation is frozen at current FY 83 levels.

National Guard Personnel, Army:

The FY 84 National Guard Personnel, Army (NGPA) budget request of $1,915 million provides pay and related expenses for Army National Guard personnel. Table 3 shows Army National Guard personnel strengths and the NGPA budget.

TABLE 3

US Army National Guard
(End Strength)

	FY 82 ACTUAL	FY 83 ESTIMATE	FY 84 REQUEST
Pay Group A	366,485	367,085	364,249
Pay Group F	19,597	22,100	24,200
Pay Group P	10,145	14,015	14,015
Full-Time Active Duty	11,374	13,819	18,630
TOTAL	407,601	417,019	421,094

National Guard Personnel, Army
($ in Millions)

	FY 82 ACTUAL	FY 83 ESTIMATE	FY 84 REQUEST
Pay Group A/P	917	994	1,016
Pay Group F	196	205	235
School Training	56	69	97
Special Training	38	59	85
Administration/Support	304	372	482
TOTAL PROGRAM	1,511	1,699	1,915

The National Guard Personnel, Army appropriation provides for costs of the Army National Guard military personnel. The costs consist of pay and allowances, clothing, subsistence, gratuities, and travel. The FY 84 request provides for the training and support of 421,094 Army National Guard personnel in the Selected Reserve by year-end. In addition, the FY 84 request provides school and special training for officers and enlisted personnel. It also provides funding for 18,630 officer and enlisted personnel on full-time duty status.

Reserve Personnel, Army:

The FY 84 Reserve Personnel, Army (RPA) budget request is $1,387 million. This appropriation provides pay and related expenses for Army Reserve personnel and members of the Reserve Officers Training Corps (ROTC). This request also funds an estimated FY 84 end strength of 10,664 full-time active duty personnel to assist in organizing, administering, recruiting, and training the Army Reserve. A summary of budgeted end strength and entitlement category in the RPA submission is shown in Table 4.

TABLE 4

Reserve Personnel, Army
(End Strength)

	FY 82 ACTUAL	FY 83 ESTIMATE	FY 84 REQUEST
Paid Drill Strength	242,921	251,680	251,545
Active Duty Strength	5,894	8,251	10,664
Individual Mobilization Augmentees (IMA)	7,844	8,600	10,718
TOTAL	256,659	268,531	272,927

Reserve Personnel, Army
($ in Millions)

	FY 82 ACTUAL	FY 83 ESTIMATE	FY 84 REQUEST
Pay Group A/P	576	639	668
Pay Group F	134	153	139
Pay Group D	13	14	14
School Training	33	35	59
Special Training	33	36	46
Mobilization Training (IRR)	36	53	53
Administration/Support	175	229	302
ROTC	55	72	91
Chaplain Candidate Program	0.5	0.5	0.5
Health Professions Scholarship Program	16	15	15
TOTAL PROGRAM *	1,071	1,247	1,387

*Totals may not add due to rounding.

The request provides for a small decrease in paid drill strength and an increase in full-time manning of Army Reserve units. The request also includes programs to increase the strength and readiness of the Individual Ready Reserve (IRR) and increased ROTC enrollment.

OPERATION AND MAINTENANCE -- $19.7 BILLION

Approximately 30 percent of the Army budget is allocated to Operation and Maintenance which provides for all operational activities that: maintain the near-term readiness of our units; support unit and individual training requirements; support recruiting, examining, and processing of the volunteer force; operate the logistical maintenance base; and operate the Army's supply system. Operation and maintenance funds also support the maintenance of facilities, pay the salaries of the civilian workforce, and contribute toward providing an adequate living and working environment.

Operation and Maintenance, Army:

The distribution of Operation and Maintenance, Army (OMA) by program is shown in Table 5.

TABLE 5

Budget Program
($ in Millions)

	FY 82 ACTUAL	FY 83 ESTIMATE	FY 84 REQUEST
2 - General Purpose Forces	5,219	5,631	6,532
3 - Intelligence	171	206	228
3 - Communications	639	702	813
7 - Central Supply	3,034	2,980	3,254
7 - Maintenance	1,540	1,785	1,861
8 - Training	1,824	1,889	2,136
8 - Medical	1,069	1,157	1,223
8 - Other	462	487	560
9 - Administration	934	1,050	1,153
10- Other Nations Support	106	96	108
TOTAL PROGRAM	14,998	15,983	17,868

The FY 84 request of $17.9 billion improves near-term readiness and contributes to the capability to expand the force through mobilization. The FY 84 total includes $.8 billion of cost growth and $1.1 billion of program growth.

Operation and Maintenance, Army National Guard:

The funding categories of the FY 84 Operation and Maintenance, Army National Guard (OMARNG) appropriation are shown in Table 6. They support the projected National Guard end strengths depicted in Table 3. This request also supports 22,740 civilian employees.

TABLE 6

Operation and Maintenance, ARNG
($ in Millions)

	FY 82 ACTUAL	FY 83 ESTIMATE	FY 84 REQUEST
Training/Operations	143	161	162
Depot Maintenance	56	56	55
Logistical Support	759	795	735
Medical Support	7	8	9
Base Operations	72	90	91
Recruiting	10	13	13
Management Support	57	68	70
TOTAL PROGRAM *	1,105	1,191	1,135

Operation and Maintenance, Army Reserve:

The FY 84 Operation and Maintenance, Army Reserve (OMAR) appropriation request provides operating support for the projected Army Reserve strength shown in Table 4 and resources to improve the mobilization and combat readiness of early deploying Army Reserve units. A summary by major category of the OMAR submission is shown in Table 7.

TABLE 7

Operation and Maintenance, Army Reserve
($ in Millions)

	FY 82 ACTUAL	FY 83 ESTIMATE	FY 84 REQUEST
Training/Organization of Mission Forces	411	438	386
Depot Maintenance	8	8	9
Communications	12	12	15
Base Operations	168	169	176
Recruiting	33	40	33
Management Support	34	38	44
TOTAL PROGRAM *	666	705	663

* Totals may not add due to rounding.

FAMILY HOUSING -- $1,241 MILLION

The Army Family Housing Program is shown in Table 8.

TABLE 8

Army Family Housing
($ in Millions)

	FY 82 ACTUAL	FY 83 ESTIMATE	FY 84 REQUEST
Construction	93	128	187
Debt Payment	6	6	3
Operation & Maintenance	709	770	964
Applied to Maintenance Backlog	(0)	(0)	(57)
Leasing	60	73	87
TOTAL PROGRAM	868	977	1,241

The FY 84 Army Family Housing budget provides funds for the annual operation and maintenance costs, as well as an increased emphasis on new work. The family housing budget also provides for construction of 759 new units and lease authorization for 20,608 units.

INVESTMENT -- $25.9 BILLION

Approximately 40 percent of the FY 84 budget is requested for investment programs: procurement; research, development, test and evaluation; and military construction.

Procurement

The FY 84 procurement appropriation requests are shown in Table 9. They seek to balance procurement for near-term force readiness with long-term modernization needs.

TABLE 9

Procurement Overview
($ in Millions)

	FY 82 ACTUAL	FY 83 ESTIMATE	FY 84 REQUEST
Aircraft Procurement, Army	1,966	2,487	3,472
Missile Procurement, Army	2,131	2,267	3,089
Procurement of Weapons & Tracked Combat Vehicles, Army	3,746	4,699	4,934
Procurement of Ammunition, Army	2,323	2,122	2,334
Other Procurement, Army	3,707	4,108	5,363
National Guard Equipment, Army	50	0	0
TOTAL PROGRAM	13,923	15,683	19,192

Aircraft Procurement, Army:

This request will provide funds to procure UH-60A Black Hawk and AH-64 Apache helicopters, spares, and related long lead time engines and avionics equipment. It will also fund the modernization of CH-47D Chinook medium lift helicopters, the Army Helicopter Improvement Program (AHIP), modifications of other fielded aircraft, and support equipment and facilities.

Missile Procurement, Army:

This account includes funds to procure Patriot missiles, Stinger, the Multiple Launch Rocket System, and associated support equipment. The request also includes funds for modification of TOW, Hawk, and Chaparral.

Funds are also included to procure air defense targets, to provide missile system support items, to improve the production base, and to obtain spares and repair parts for procurement and modification programs.

Procurement of Weapons and Tracked Combat Vehicles, Army:

This account funds continued procurement of the Abrams tank, the Bradley fighting vehicles (BFV), and their supporting systems. Procurement of conduct of fire trainers and driver maintenance trainers for our armored vehicles are also included. Modification programs include the M113 armored personnel carrier family of vehicles and the M110 8-inch self-propelled howitzer. FY 84 funds also procure the squad automatic weapon and spares and repair parts to support new systems and fielded equipment.

Procurement of Ammunition, Army:

This account includes two major programs: ammunition hardware and production base support.

Funds for ammunition hardware provide for 8-inch and 155-millimeter improved conventional munitions; 155-millimeter area denial artillery munitions; and remote anti-armor mine system projectiles. Funding is also included for training ammunition and for procurement of components for the production of the binary chemical round.

Production base support funds provide for modernization of existing World War II facilities and for expansion of the production base required to provide production capability for new modernized munitions

Other Procurement, Army:

Other Procurement, Army (OPA) funds: tactical and support vehicles; communications and electronics; and other support equipment.

Funds for tactical and support vehicles provide for the replacement of peacetime losses; fill the most critical shortages in troop units and war reserve stocks; continue upgrading the tactical wheeled vehicle fleet; and continue the Army's vehicle commercialization program.

The communications-electronic equipment request supports command, control, and communications requirements of tactical and strategic forces and improves communications security. Electronic warfare equipment for tactical forces is also included.

The other support equipment category procures a variety of construction items, material-handling equipment, generators, and other items that increase our battlefield support capability. It also provides replacement items for peacetime losses in the current support equipment inventory.

National Guard Equipment, Army:

This account was established at the direction of Congress to purchase equipment for the Army National Guard.

Research, Development, Test and Evaluation

The major program areas of the Army FY 84 Research, Development, Test and Evaluation (RDTE) appropriation are shown in Table 10.

TABLE 10

Research, Development, Test and Evaluation, Army
($ in Millions)

	FY 82 ACTUAL	FY 83 ESTIMATE	FY 84 REQUEST
Technology Base	603	664	736
Advanced Technology Development	200	258	419
Strategic Programs	462	569	763
Tactical Programs	1,569	1,512	1,937
Intelligence and Communication	55	76	89
Defense-wide Mission Support	731	805	848
TOTAL PROGRAM *	3,620	3,885	4,792

* Totals may not add due to rounding.

The growth in the technology base provides for keeping pace with expanding technology, prepares for new weapons options, and attempts to preclude technological surprise. Advanced technology provides demonstrators of new concepts such as the Army Development and Employment Activity, advanced software, more efficient and lighter aircraft and vehicle components, and new weapons concepts. Major modernization efforts include the 155-millimeter howitzer program, Bradley Fighting Vehicle System, Joint Service Vertical Lift Aircraft (JVX), 120-millimeter tank gun and ammunition, Joint Tactical Missile System, Patriot, Remotely Piloted Vehicles, and NBC protection.

Military Construction

This portion of the budget includes funds for construction to support operations and training, tactical and support maintenance, hospitals, other medical requirements, troop housing, and military community needs. Funds are also included for the planning and design of future programs, unspecified minor construction projects, energy conservation, and pollution abatement.

Military Construction, Army:

The FY 84 Military Construction, Army (MCA) appropriation request is shown in Table 11.

TABLE 11

Military Construction, Army
($ in Millions)

Facility Category	FY 82 ACTUAL	FY 83 ESTIMATE	FY 84 REQUEST
Operations & Training	68	132	254
Maintenance & Production	162	246	331
Research & Development	29	5	35
Supply & Administration	38	7	67
Hospital & Medical	112	55	25
Troop Housing/Community Support	209	206	289
Utilities/Land Improvement	122	104	133
Real Estate	28	0	20
Planning Design/Access Roads/ Unspecified Minor Construction	176	175	221
Specified Minor Construction	7	0 *	0 *
TOTAL PROGRAM	951	930	1,375

* Known minor specified location construction projects are included in category totals.

The FY 84 request contains $1,154.5 million for major construction, $32 million for unspecified minor construction, $188 million for design and planning, and $.5 million for access roads and other support. Approximately 34 percent is for construction overseas, primarily in Germany, Korea, and to support the Army Forces for USCENTCOM; 50 percent is for construction in the United States; and the remaining 16 percent is for planning and design, unspecified minor construction, and access roads.

Military Construction, Army National Guard:

The FY 84 request for Military Construction, Army National Guard (MCARNG) provides for 40 major projects. Included in the major projects are 25 armories, 2 aviation facilities, 4 training facilities, 6 equipment maintenance facilities, 1 logistics facility, and 2 U. S. property equipment and fiscal office facilities. Table 12 displays the MCARNG appropriation by major category.

TABLE 12

Military Construction, Army National Guard
($ in Millions)

	FY 82 ACTUAL	FY 83 ESTIMATE	FY 84 REQUEST
Armory	26	27	22
Non-armory	35	17	23
Minor Construction	4	8	8
Planning and Design	3	3	3
TOTAL PROGRAM *	68	55	55

* Totals may not add due to rounding.

Military Construction, Army Reserve:

The FY 84 Military Construction, Army Reserve (MCAR) request of $53 million will provide for the major construction, minor construction, and the planning and design of Army Reserve facilities. The United States Army Reserve (USAR) construction backlog remains high at $1,085 million. Table 13 displays the MCAR appropriation by major category.

TABLE 13

Military Construction, Army Reserve
($ in Millions)

	FY 82 ACTUAL	FY 83 ESTIMATE	FY 84 REQUEST
Major Construction	55	29	40
Minor Construction	4	4	5
Planning and Design	6	9	8
TOTAL PROGRAM	65	42	53

STOCK FUND -- $409 MILLION

Stock fund war reserves ($255 million) are inventories of secondary items procured to satisfy wartime requirements from the time a conflict begins until the production base can directly satisfy consumption demands. These stock fund war reserve items are critical for support of the individual soldier as well as for major weapons systems. Peacetime stock fund inventories ($154 million) are procured to provide repair parts needed to support weapons systems which will be introduced into the inventory in the near future as we modernize and transition to the Army of tomorrow.

Chairman **Tower**. General Meyer?

STATEMENT OF GEN. EDWARD C. MEYER, CHIEF OF STAFF, U.S. ARMY

General **Meyer**. Thank you, Mr. Chairman.

I laid out in my statement the basis for the Army along the lines you alluded to in your opening comments, Mr. Chairman. That is, we don't decide independently what the Army ought to do. We are doing things in response to national requirements, in response to treaties, in response to agreements, and in response to the threat.

Our requirements have grown. Just in the past year we have been asked to send some 1,200 additional soldiers into the Sinai. We have been asked to take on responsibilities in our new Central Command. We are also trying to enhance the way in which we play a role in the Pacific, countering that threat as it has grown.

We don't determine our tasks. Our job is to field the units that can respond to those tasks in conjunction with the rest of the Services—the Air Force, Navy, and Marine Corps.

If you started to add up whether or not there are enough land forces to do the job in the Army, Navy, and Marine Corps, you would have to conclude no, there are not. So we have to figure out how to do better with those forces available.

I got into a bit of trouble for saying we had a hollow Army. All I can say is that the $153 billion that the Congress has given us in the past 3 years has permitted us to take steps to provide a solid base on which to build the Army of the future.

Chairman **Tower**. May I say, General, you did not get into trouble with this committee. You got our attention.

General **Meyer**. I think the Nation got its money's worth because we have been able to deter war and we have a solid base on which to build.

As I said, there are not enough land forces to go around. We have learned once again from the Falkland Islands and other battles in the near past that soldiers continue to be important. We have to figure out how to get leverage, how to be able to do more with the resources you give us.

The force multipliers we have been able to apply will help us to do that. We've changed how we fight so that we now attack the enemy's weaknesses instead of lining up soldier to soldier in defensive positions. The whole concept of how we go about fighting on the battlefield in the future depends on the kind of equipment that will permit us to implement this new approach. We decided not to have a bigger Army. We decided to keep the strength of the Army constant and to make it a good Army because quality armies are going to win in the future, not big armies.

A third leverage area is good units and good soldiers. The resources which we were provided to recruit and retain our NCO's and soldiers have permitted us to bring in quality. We are attacking turbulence by keeping units together where the soldiers stay together during their first tour in the Service.

The Secretary mentioned strategic mobility and the importance of what we need from the Air Force and the Navy in the way of inter and intratheater lift, but that does not let us hang our hat on those two pegs. We also are doing some things to make the Army lighter. At Fort Lewis, we are in the process of developing a lighter division that will not require as much strategic lift for the rest of this century.

Other areas of force multipliers are the way we work with our allies and the light forces and Special Operations Forces that Secretary Marsh spoke of. Those are the major themes of this Army in transition.

Most of the money we are asking for goes for meat and potato items—the kinds of things that we need to insure that soldiers can train and fight and have the equipment that will win on the battlefield. While we put money into that, those of us who are paid for thinking are trying to determine how to use the resources we get more intelligently, so that we get more for the resources that we are given.

There is still a lot that we have not done. I would say if I had to make a plea to all the members of this committee, there are three areas I would ask you to look at very carefully as you address the Army budget.

The first is the people issue. We now are getting good people and we are keeping good people. In anything that we do at this time, we have to be very sensitive to what we do to people. So, I would plead with you, as you address our budget request, do not do something that puts us back into a position where we get poorer quality soldiers and are not able to keep the middle-skill level NCO's that are absolutely essential if we are going to have the Army that we need.

The second area is equipping. Soldiers have to have something that will permit them to win on the battlefield, not just something they can carry on the battlefield. I think that is an essential point as we go through this modernization process.

The third area just happens to be—since I have a chance to lecture the Armed Services Committee, I will—that I honestly believe we have to come up with a better way of doing Defense business. You know I have commented and written on the process within the JCS. But I don't think that is the entire problem.

If you only reorganize the JCS, and don't change the interface between the military and civilians in the Defense Department, the administration, and, in my judgment, the way we do business with Congress, nothing will happen. I believe there are changes that need to be made in the way in which we do business.

In conclusion, I would just underscore everything you said and then put a square on it as far as the two commanders are concerned. General Cavazos, of course, commands all of our Army Strategic Reserve. General Keith is responsible for the logistics support and for weapons development and fielding.

Between the two of them, they are responsible for about 55 percent of the budget we are addressing here. So, I think that you have here, both from the combat side and from the support side, the two best soldiers, and the two people most responsible for these functions.

[The prepared statement of General Meyer follows:]

PREPARED STATEMENT BY GEN. EDWARD C. MEYER, CHIEF OF STAFF, U.S. ARMY

Mr. Chairman, members of the committee, once again it is my responsibility to appear before this body and assist in deliberations concerning our national defense. I welcome this opportunity to report to the committee on the Total Army's capability to fulfill its reponsibilities for national defense.

The Army's responsibilities for defense are derived from national goals and objectives prescribed by the executive branch and endorsed by Congress through ratification and support of treaties and international agreements. Many of these, such as participation in NATO, represent long-term political, military, economic and moral commitments. The Army's mission is to field forces capable of meeting these obligations within fiscal and manpower constraints.

Developing an Army to meet the multiple commitments we face is a challenging task. In the course of the last four years, a period in which both national parties have held political control, the dimensions of our task have grown markedly. We have been directed to prepare a force for possible employment in Southwest Asia under the newly formed United States Central Command. We have developed that capability with no change in other existing missions. The Army has been directed to participate in peacekeeping activities as a result of the Camp David accords. Army forces are in the Sinai today—with no diminution of mission requirements elsewhere. The Army has been asked to expand its efforts to assist friends and allies in strengthening their internal defense capabilities—particularly in the Caribbean Basin—and its other responsibilities remain unchanged. Today's international environment is extremely unsettled and, in looking toward the future we foresee no decrease in world tension, no reduction in the scope of worldwide commitments we must underwrite. Therefore, the Army is faced with the challenge of improving readiness today while preparing a viable, effective fighting force for tomorrow.

Our strategy for today and tomorrow takes into consideration the range of environments in which we might be called upon to fight, as well as the changing nature of warfare. Most armies of the world have the advantage of knowing exactly where soldiers will be committed. For us, there is no single force adequate for all geographical demands. Deserts, mountains, jungles, arctic areas and rolling plains each impose distinct requirements, and the Army must be prepared to operate in each as we meet our global commitments.

The Army's strategy for the 1980's, derived from national strategy, is global in nature. First and foremost, the Army must defend the United States and its territories. It must also deter Soviet aggression by convincing the Soviets and their proxies that the Armed Forces of the U.S.—in conjunction with those of our allies—will respond to any challenge with an appropriate response. This combined capability, blocked with the will to use it, will be what will protect our vital national interests whenever they are challenged.

In his remarks, Secretary Marsh indicated that our land forces are no longer the "hollow Army" which I first described to you in May of 1980. At that time, although our forward deployed forces were at acceptable strength levels, our continental based strategic reserve—both Active and Reserve Components—were not only understrength but lacked the critical noncommissioned officer leaders necessary to turn ten men into a squad. Our soldiers were short of equipment of all kinds—not just modern equipment—and our program to provide for their needs was moving at a snail's pace. We lacked adequate levels of ammunition and war reserves to support our forces in a wartime environment. Our capability to fight and win a sustained mid- to high-intensity war—and consequently, our ability to deter such a war—was questionable. These unacceptable conditions were what I referred to when I branded us as a "hollow Army."

The report card which we provide today, in conjunction with the fiscal year 1984 budget request, reflects significant qualitative improvement in the Army in comparison with the Army of 1980. In the past three budgets, you—the Congress—have provided the Army with $153 billion. I believe the American people have gotten their money's worth. Neither you—nor the Army—has any reason to be apologetic. The resources you provided have permitted us to create a healthy base upon which to build the Army required by this Nation for the remainder of the twentieth century.

The Army is embarked on one of the most ambitious transformations it has ever attempted in peacetime. The Army is managing this transition toward the future with forward-looking programs in the areas of doctrine, manning, training and equipping which, when taken together, provide force multipliers that will provide more capability than anticipated from the resources which we have been given.

The first of these force multipliers is our evolving concept of how to fight on the modern battlefield. It recognizes that we cannot successfully confront an enemy who can outnumber us along a shallow line of contact at places and times of his choosing. If, however, we can anticipate his movements and wrench control of events from him before he commits his forces to the frontal battle, we can influence the tactical situation in our favor. We call this the AirLand Battle—a way of thinking and combining Army assets with those of the Air Force to disrupt an enemy advance by striking his reinforcing elements to create opportunities for us to use our maneuver elements. In doing so, we gain battlefield leverage we have not heretofore possessed. By adding depth to the battlefield, we can also address the importance of being able to ensure the security of our rear areas.

The second force multiplier is the far more capable equipment we are now either fielding or developing. A few years ago, we made the fundamental decision not to increase our force structure and to concentrate the resources we were given toward investment in more capable equipment. This was a correct decision. You have supported the major items of equipment we are developing and procuring—items that can provide a quantum increase in battlefield effectiveness.

Our third force multiplier is our investment in good units and good soldiers. The quality of our force has improved dramatically over the past several years. Our recruits have more ability and are staying with us longer. We are keeping them together longer in their early training, and have adopted a new manning system for our combat units to ensure greater unit stability and cohesion by fostering the long-term association of soldiers with the same unit both at home and abroad. Commanders remain in command longer, become more proficient at their "go to war" skills, and provide better leadership for their soldiers. These measures have enhanced morale, training and readiness.

As our more effective tactics, more modern equipment, and better soldiers have begun forging a more capable Army, we have turned our attention to a fourth force multiplier, strategic mobility. This is the capability to deploy our forces when and where they are needed overseas. The Army depends largely on our sister services for strategic mobility, but we believe we can contribute to strategic mobility by making our forces less demanding of airlift and sealift assets. At Fort Lewis, with our 9th Division, we are creating versatile, rapidly deployable light but hard-hitting forces for world-wide use. If, however, we are to capitalize on this potential, we need your support for essential financing procedures to capitalize on newly identified, high priority areas which have the potential to achieve significant combat capability improvement quickly. I specifically urge your support of our present High Technology Light Division effort and similar initiatives which can improve the strategic mobility of our forces.

Another way of gaining leverage is to work more closely with our allies. Collective security and Security Assistance, a fifth force multiplier, have long been hallmarks of our policies world-wide. This force multiplier is working, but it needs your specific attention and support. Increased financial help to our friends and allies through Foreign Military Sales (FMS) and the Special Defense Acquisition Fund (SDAF) continue to prove their value in offsetting the strategy-force mismatch inherent in America's global posture. Security Assistance provides the means for our friends to improve their own defensive postures, thereby lessening our own burden.

The final force multiplier I will highlight exists in our rapidly improving Special Operations Forces. These forces have been remarkably effective in providing the small unit training and assistance that many Third World governments need. Beyond their Security Assistance roles, these forces provide an essential capability to conduct operations in low-intensity conflict environments marked by terrorism, subversion, and guerrilla warfare. They can keep major conflict from erupting and help us and our friends by countering threats before they mature into greater concerns.

These are among the major themes that the Army has emphasized as we transition to an Army of excellence. They are low-cost, high-leverage approaches to national security that merit your support.

This report card reflects an Army in transition. Much remains to be done. The budget before you will permit us to continue in our path toward excellence. Two areas in the budget—manning and equipping—merit particular attention.

We now have programs in being which attract and retain quality soldiers. Protect them!

We now have weapons systems and support systems coming into the Army which will permit our soldiers, Active, National Guard, and Army Reserve, to win on the battlefields of the future.

Another lever which you have continually expressed interest in is the effective integration of the Army National Guard and the Army Reserve into true partnership with the Active Component. I am pleased to tell you that this budget will help us continue the progress begun in 1979, when for the first time since 1971, we saw stabilization and growth occur in the strength of all components. This budget continues that growth in strength and quality, increasing full-time manning by 7,000. It also funds improved school and special training. Not evident in the Reserve appropriations request is the Total Army distribution of modern equipment into Guard and Reserve inventories. This flow occurs in accordance with our long-standing rationale of giving it to those who will be called on to fight first. Almost $1 billion of this year's Army procurement account is projected to be distributed to the Reserve Components in future years. This year, as a result of earlier appropriations, some $750 million worth of newly procured equipment will be delivered into Guard and Reserve units. This equipment covers all categories, combat and support. Typical of the items to be delivered are the new M1 tank, the M60A3 tank, lightweight company mortars, improved TOW vehicles and command carriers, Roland and Chaparral air defense systems, trucks, forklifts, and expandable medical shelters. We have a long way to go, but genuine progress is being felt.

Arguments range about what is readiness, what is modernization, what is sustainability. The argument is moot where we still have soldiers without equipment. Reductions in the fiscal year 1982 and fiscal year 1983 budget requests have delayed procurement programs—and in some instances led to increased program costs—because we were forced by federal constraints to procure equipment at a less than fiscally optimal rate. Additionally, readiness suffered. As you are aware, the Army is now in the midst of long-term modernization and procurement programs, upon which force structure reorganizations and operational concepts have been predicated. If these programs are scaled down, or eliminated, modernization, current readiness, and sustainability will suffer. New equipment will provide improved readiness today and tomorrow because, in addition to better capability, it will also provide improved reliability, easier maintenance and better man-machine interface. We need your support for a stable procurement program which will provide enormous benefits and cost savings.

I continue to believe, as I indicated in last year's testimony, that there are better ways for our Nation to go about managing defense business. I say our Nation because it is not just the Office of the Secretary of Defense or the Joint Chiefs of Staff or the Service Departments that are involved. It is you—the Congress—the OMB and the agencies of the Defense Department that must come to grips with how we can come together as a group to ensure more and better defense for the dollars we spend.

I am proud of our Army, the people in it and the dedication they have toward the defense of our Nation. Admiral of the Fleet of the Soviet Union Gorshkov, Commander-in-Chief of the Soviet Navy since 1956, wrote: "There have virtually been no pure land and no pure sea wars, one principle remaining unchanged: the results of a victory in a campaign or in a war as a whole can be consolidated only by the land forces capable by their actual presence of asserting its reality." All the conflicts of the past year have again reemphasized the importance of well-trained, well-equipped and well-led ground forces. Our ability to deter wars in the future and our ability to win wars if deterrence fails will not be decided by how big our Army is—but by how good it is! We have the chance to have an Army of excellence. The approval of this budget will go a long way toward ensuring that we have that Army—today and tomorrow.

Chairman **Tower**. Thank you, General Meyer.

It is my understanding that General Keith and General Cavazos do not have opening statements, but will be available to respond or comment.

Let me invite both of you to comment on questions that are asked regardless of whom they may be directed to, if you feel you have something to add or supplement in response.

STABILITY IN PROCUREMENT

Mr. Secretary, if you stabilize the big ticket items, M1, Bradley, Apache, and so forth, at their optimum procurement right over the 5-year program, do you still have sufficient flexibility in your procurement accounts so that you will not have to pay for reductions in your O&M and pay accounts?

Secretary **Marsh**. Senator, I will amplify that for the record. I will say to you that in the operation and maintenance account and in some of our other accounts that relate to spares, there is a sharing of the pain on sustainability and in other areas that are equally essential.

We are not able to do the things that we would like to do in all those areas. This year we begin to see some stabilization of our major equipment items. I am not prepared to say that is a trend, but it is a good indicator.

We took figures from the last 4 years for 12 of our major SAR (Selected Acquisition Report) systems that we report. In the last year we only had a cost growth of $169 million on these very substantial multibillion-dollar programs—actually around $80 billion—and the cost growth of those 12 systems last year was two-tenths of a percent.

We think that is the result of better management. I give great credit to the Under Secretary of the Army, Mr. Ambrose, who has had responsibility in that regard. General Keith has also been concerned with and aware of those initiatives.

General Keith may wish to comment on the particular question you asked me.

[The information follows:]

PROCUREMENT AND O&M ACCOUNTS

Secretary **Marsh**. No. In order to stabilize the M-1, Bradley, and Apache at their optimum procurement or economic production rates in the five year program we would require funding well above our current budget levels. Were we to support these expanded procurement levels we would have to obtain additional Total Obligation Authority or reduce O&M and other accounts in the Army Budget. The Army currently has stabilized its procurement program for these items at production level consistent with available resources and Army requirements. There are sufficient planned resources identified in the Administration's Five Year Program to acquire, operate, and maintain the equipment specified in the plan. The appropriate balance has been achieved between the procurement and operating accounts in the proposed budget and Five Year Defense Program. There are six Army procurement systems which are considered stable; these stable programs represent approximately 21 percent of the Army's total procurement funding during the five-year period. In addition to those systems you mentioned, our stable programs include CH-47, MLRS, BLACKHAWK.

Chairman **Tower**. Would you like to comment, General Keith?

General **Keith**. Yes, sir. I agree with the Secretary. The sharing of the pain is done in a balanced way. We have learned pretty well how to address all of the appropriations together so that if we have to sacrifice in one area, we take in parallel the ripple effect of that sacrifice across the other appropriations.

Insofar as our program cost stability, I feel pretty good about where we are now. We went through a very, very rough period as we brought our new systems out of research and development and into procurement as did the other Services. We now have stabilized them.

Most of them now are in their second and third year of production. Most are either on multi-year contract or ready for you to consider as multiyear, and you would expect stability at that point in time.

What we are doing is going back and digesting what caused our problems during the transition to production. At the same time, we are stabilizing these programs where we are not yet procuring. We are trying to institutionalize the proper changes to preclude that happening to us again.

I spend a great deal of my time along with Secretary Ambrose in that very effort.

General MEYER. I would like to add one point, however. That is, unless we bring stability to the program through the budgeting system, you will get less defense for the dollar because every time you change the budget program, General Keith has to go back and renegotiate. All the gains he is talking about that he has made will be lost because then you have to stretch out or change the program. Stability in procurement will give the country more defense for the buck than—in many instances—just more dollars could produce.

REDUCING MODERNIZATION PROGRAMS

Chairman TOWER. Let me ask you to comment on a related question, General Meyer. It has been charged by some that we are robbing readiness and sustainability to fund modernization.

Now, assuming that we have finite dollars to work with, do you feel that we should make any reductions in spending on moderniztion programs to more fully fund readiness and sustainability?

General MEYER. First of all, I believe those who make that argument make a false argument. Much of the new equipment adds to readiness.

A new M1 tank battalion at Fort Hood in the Third Division adds to readiness. It also adds to sustainability because it is more easily maintained by the soldier. The approach to trying to separate readiness, sustainability and modernization is a specious argument as far as the Army is concerned.

What you have to do is to be smart enough to insure that new equipment coming in provides increased capability. Otherwise you end up with the Army becoming obsolete at some point in its history, leaving the soldier with the wrong kind of equipment for the battle he will have to fight.

General CAVAZOS. I want to add from the soldier's standpoint, talking about a choice of readiness or modernization, the soldier knows better than anybody else whether he has a decent piece of equipment. The committee could learn quickly enough from a soldier. To put him on the battlefield with second-class equipment is the worst thing we can do.

The whole system becomes unlinked if we play with the budget process down at our end unless you take the whole system out, which I certainly don't recommend.

For example, if there are salami slice cuts in the budget—I am going back to your original opening statement—if you salami slice the budget, then there won't be hard stands in the motor pool for that soldier and there won't be the generator for the truck that goes with the main item of equipment. That reduces readiness down at our level.

Chairman **Tower**. Let me ask you another question. There has been another suggestion made that we are spending too much on heavy equipment, that we ought to provide our Army with light, highly mobile equipment and in effect resort simply to what is called maneuver warfare, that is to say, lightly equipped soldiers that are highly mobile and quickly maneuverable.

Secretary **Marsh**. I will make a brief comment and then I will defer to General Meyer to further respond to that.

I think in Western Europe you will always have to have a very substantial presence with heavy armor. I think you can get flexibility by adding light forces, but in my view that will always be a heavy armor scenario.

Mobility is very important for light forces in areas of the world where you may have to deploy forces quickly to deter conflict or if forces have already become engaged.

I will defer to General Meyer as an expert in this field.

General **Meyer**. The issue tends to become confused because the two leading proponents of maneuver warfare in this century, if you took a poll, would be Rommel and Patton. Each of them focused not just on maneuver to confuse people, but they both indicated that you also had to kill somebody as well. Their focus was maneuvering so that you were in a position to be able to destroy the enemy.

My point is you can't just outmaneuver and confuse the enemy. At some time the soldier has to take out his bayonet or rifle, or the aircraft has to fire, or the sailor has to shoot at the enemy. He has to be held hostage and you have to take him on.

The important part from our point of view is that this "heavy equipment", as you have very properly pointed out—the M1 in the REFORGER exercise, the M2 which is an infantry carrier that will keep the soldiers up with tanks, and a helicopter which can stay up with them—will introduce on the battlefield a new capability. If we are smart enough to use it, and I think we can, we will develop the same capability of maneuver with heavy equipment that the Germans used at the start of World War II with the Stuka and with the tank.

So, you have to have maneuver capability with both heavy and light forces, and the maneuver argument should not be confused with the type force discussed.

My second point is that we do need a mixture of heavy and light forces and we will always have to have a mixture of heavy and light forces. Unlike our counterparts in other armies—the German Army knows where it is going to operate, the Israeli Army knows where it is going to operate, the Norwegian Army knows where it is going to operate—we don't know where we will be called upon to go.

We have to have an Army that is more flexible than others, that can respond to different terrain and different environments and across a wider spectrum of warfare.

ARMORED COMBAT EARTHMOVER [ACE]

Chairman **Tower**. One final question. The ACE is back in the budget this year. I would like to ask General Cavazos his opinion on whether or not it makes sense to deploy the M1 without the ACE?

Couldn't you use a standard bulldozer to dig in the M1?

General **Cavazos**. Sir, the ACE is not to dig in the M1 but to give us mobility and countermobility engineer enhancement. Everyone seems to talk about the Russian tank threat and I am terribly worried about it, but I am equally worried by the Russian artillery threat to our soldier's capability.

For example, a Soviet motorized division can deliver 17 short tons of explosives with one yank of the lanyard. That is 51 tons aimed at one of our divisions which is supposed to fight him at 3 to 1 odds.

The spade and digging in is the one thing that keeps coming out in all types of warfare but particularly when you finally have to dig in and hold. That engineer equipment—the ACE—is indispensable for immediately digging our people in. We are talking survivability. We are not just talking survivability of the soldier and the M1, but of crucial command and control elements. Our engineers need some kind of armored vehicle with which they can accompany armored forces.

That is where I am coming from at my level. We have to dig in and get hardened up in a hurry and that is the only piece of equipment that I think is in the offing.

The Chief may have different views on that.

Chairman **Tower**. There are those that suggest the reason we have to buy the ACE is because the M1 does not have an adequate dozer blade. If it were not for that fact, we would not have to buy this expensive equipment?

General **Keith**. That is not the reason for having that "high mobility bulldozer," if you will. It is true that it can help a tank dig in, but it can also do all the other things that General Cavazos just described.

The issue is, on the highly mobile battlefield that we expect to be fighting on, whether you have combat engineers with you or you don't. A commercial bulldozer simply can't keep up. We will be asking that multiple purpose, highly mobile piece of engineer equipment to do all the things the combat engineers have always done, but they will be able to keep pace with the armored forces.

Chairman **Tower**. Isn't the primary function of the tank to fight and not to dig holes?

General **Meyer**. That is right. You would be the first one to criticize us if we made it heavier and turned it into a dozer, and properly so.

Chairman **Tower**. I have additional questions I would like to file for your response in the record.

Senator Jackson.

Senator **Jackson**. Mr. Chairman, first off, Senator Stennis wishes to convey, General Meyer, his regret at not being here. I want to join him in paying tribute to you for your outstanding service as Chief of Staff. You have provided, I think, outstanding leadership.

You have been forthright, you have been honest, and you have tried to find answers to some of these problems in what has been at times a very difficult environment.

Senator Stennis joins me in wishing you well. We are sorry that you will be leaving in June because your leadership has been invaluable. We in the Armed Services Committee deeply appreciate it.

EXPANDING THE MISSION OF THE RESERVE COMPONENTS

Mr. Chairman, I am going to be very brief. I have just one question and that is, we all know that over half of the defense dollar goes to people on active duty in various supporting roles.

I want to ask the Secretary in connection with your statement, and I refer to the statement that you just made, you say we have reached the point where it is no longer viable to shift Army missions and units from the Active Force to Reserve components.

You also say that any reduction in our active duty end strength would have to be made in our forward deployed forces.

Now, if we were to transfer more units and missions to the Reserves, why would these transfers have to be made out of forward deployed units? Why, for example, couldn't we expand the current roundout program for a division based in the United States in which one brigade of an active division is in the Reserve component?

Secretary **MARSH**. Senator, I think we can do a number of those things. Let me make several points in reference to continuing to transfer some of the missions of the Active Forces to the Guard and Reserve.

There will be a continued expansion of missions for the Guard and Reserve. But if we continue to take Active Force missions and try to transfer those to the Guard and Reserve, we will reach the point where that will cause problems in the Active force.

For example, there are already very significant shortages of combat support units and combat service support units that will be absolutely essential if we were to have a major deployment.

The roundout concept is an excellent one. General Cavazos can speak to that, but I will say to you that in the three divisions where we have used the roundout concept, we have had remarkable results. It has been a very promising program and it is one that we are going to expand.

It should be noted, however, that a roundout unit, although affiliated as a part of an active unit, is not an organic part of the Active unit. It would not necessarily deploy with the Active unit in the event of a mobilization wherein the Active unit would deploy.

General **MEYER**. There is one other aspect of it that you asked. That is why cut overseas and not cut back here.

Senator **JACKSON**. Why forward.

General **MEYER**. Right. The answer to that is very simple.

Fifty-three percent of the Army's combat force is overseas today. That means that artillerymen, tankers, and others—and especially the middle grade NCO's—keep rotating back and forth and it creates tremendous turbulence and instability back in the rear. It also provides an incentive for those soldiers to say, "I am not sure I want to keep going back and forth overseas."

Normally what you try to maintain is about two to one base to overseas commitment. We have not been able to do that. We are right at margin now.

I would not come to you and recommend that any reduction in end strength come out of units in the States. They are going to have to come from overseas.

As I said earlier, one of the things you need to be very careful in tampering with is the people issue. Reductions in strength would mean that critical NCO's would start to leave, in my judgment, more than they do today and they are the ones that are important.

We are increasing, as the Secretary said, the numbers in the Guard and Reserve units to compensate for our conscious decision to hold the Active strength constant. That process is ongoing—we must do more and more of that.

The question is how much we can ask of them and I will let General Cavazos answer because he has been dealing directly with this now for the last 5 or 6 years, at least, as a division and corps commander and Forces Command commander. He is now charged with the integration of the Active, the Guard, and the Reserve, and the training of the Guard and Reserve.

General CAVAZOS. Senator Jackson, we are on the threshold of really getting everything for our dollar that we possibly can in the Guard and Reserve forces. They have done a magnificant job. We are looking at ways, for example, to further their training by additional unit-days.

I personally am a little suspicious of too many training days because we must be careful that we do not drive them out of the program by asking them to do more and more. It is a fine tight rope we have to walk to bring them along in proficiency.

We are short 84,000 structure spaces in the Guard and Reserve today. In the "Division 86" there will be some roundout spaces we need and there is continued roundout going on. In each CONUS division there will be one additional Guard or Reserve battalion, and I am in the process of lining up those additional requirements.

We see that the bill for structure spaces on the Guard and Reserve side keeps going up most significantly without further major increase in their missions. To suddenly move over from the Active side 30,000 or 50,000 additional spaces at this stage of the game is not very feasible. I am not very sanguine that we can locate those numbers and abilities in the near-term period of three to five years to increase our readiness. That answers the short-term problem.

For the long term, the Chief of Staff of the Army has pushed the Total Army—the Active, the Guard, and the Reserve—as an entity. Under the Capstone program, I think we finally have achieved what the Secretary and the Chief wanted.

For example, the 420th Reserve Engineer Brigade at Bryan, Tex., with Brig. Gen. Len Stewart commanding, has six Active Component battalions in the brigade at Ford Hood. He also has one Guard battalion and two Reserve battalions in his brigade—true integration of the Active and Reserve components.

We have now assigned missions under Capstone to people. There are transportation truck companies in Louisiana, Mississippi, and Illinois that know where in Europe they are going to pick up III Corps ammunition and where to put it on the ground.

I think we have made significant strides, but I believe the balance is about where it should be, knowing what is still to come in the additional roundout force that we face.

Senator JACKSON. Mr. Chairman, I would like to explore this further at another time, but time will not permit it at this point.

I also have additional questions that I would like to submit for the record.

Chairman TOWER. Senator Goldwater.

Senator GOLDWATER. I want to ask about the Apache. Last year there was quite a bit of congressional interest. Most of the attention was focused on the cost growth identified in the program.

What assurances are you prepared to give the Congress that cost growth has been arrested?.

Secretary MARSH. Senator, I think from the indications that we have seen in the past year and the manner in which the program is moving this year that it is going to come in at the cost we have in mind for the numbers purchased.

In fact, we believe we are going to be able to procure 515 as opposed to 446 of those choppers within the funds that you have allocated to us for that program, sir. That will be achieved using a part of the program reserve funds, as I recall.

General Keith may wish to expand on what I have said, but I think we are on track on that, sir.

General KEITH. That is right, Senator. As you know, we are now in the process of negotiations for the second year buy. I, of course, have not been party to that, but my information now is that we are probably going to make it right at what our target was.

Senator GOLDWATER. Then you have not finalized the 1983 contract yet?

General KEITH. That is right, sir. It is in the final negotiations right now.

Senator GOLDWATER. Will that contract include 48 aircraft as well as the support equipment proposed in the fiscal year 1983 budget request for the AH-64?

General KEITH. That is right, sir.

Senator GOLDWATER. Do you think we are going to be able to maintain the same price that we reached last year?

General KEITH. Yes, sir, I do.

Senator GOLDWATER. I see no reason why you can't.

DEPLOYMENT OF RESERVE FORCES

One comment on the question put by Senator Jackson which I think you answered.

The Reserve and Guard Forces are faced with an M-day-plus problem that nobody seems to pay much attention to. The shortest M-day-plus I have ever run into is 10 days and you and I know that is not going to happen. We are usually thinking about 30 days.

If you have to move forces, you have to move total forces and not wait 30 days. Is that not right?

General **Cavazos**. We phase it in. We would move two Active brigades first with follow-on roundout units coming later.

However, some units move early, particularly Combat Service Support units which have to be over there because of the drawdown in our Active Component combat services support capability. We are not well off at all, sir. Those units are going to have to move early regardless.

Senator **Goldwater**. You are talking about M-day plus what to get a situation like that?

General **Meyer**. That varies by scenario but in general, the Active units basicially move first except for some selected Guard and Reserve units.

The earliest they would have to move would be about M-day plus-10. That would be the earliest Guard movement except for a few in the local area that would go to Galveston, Tex., or Savannah, Ga., where they would help load ships.

Those units would move more quickly because they don't have to leave the States.

Senator **Goldwater**. The bottom line is getting troops where you need them fast.

STRATEGIC PLANNING

General Meyer, you talked about needed changes. I want to ask you if you feel that we have in our Armed Forces under the Joint Chiefs a strategic plan?

Do we operate under one plan with the tactics being developed as the need is seen, tactics in different possible theaters?

I am thinking, for example, of the Soviet general strategy of allowing politics and economics to pretty much determine what they are going to do with their forces. I don't believe we have any central plan where the four forces work around the two.

General **Meyer**. Because of our many contingencies, I am going to do this without getting into security matters. I will be a little bit general. Because of the many contingencies which our Nation is called upon to respond to—Northeast Asia, the Greenland-Iceland-U.K. Gap, the Middle East, Central Europe, Central America, and so on—we have guidance which goes out to commanders in each one of those areas which gives many specific missions which we expect them to be able to carry out.

It tells them what forces are available and gives them certain assumptions as far as how the war will start and how much mobilization time there might be. From that they then develop a plan and come back and brief us and we critique that plan as to whether we consider it to be adequate or not. That is done by region.

When we try to put all of those together in a grand master plan, that is not done as well as it should be.

Senator **Goldwater**. I don't want to pursue this because I can see the two of us getting into areas that we shouldn't be in, but it is becoming a subject of increasing interest in the different war colleges I visited and the different units I visited. I know you personally are very concerned about this.

So I am hopeful that out of the present discussion concerning the Joint Chiefs and the redesign of their mission and responsibilities that you fellows, particularly in the Army, can have a big input.

General **Meyer**. We have to, sir.

Senator **Goldwater**. You may think I am only interested in the Air Force. I will tell you I was a second lieutenant in the infantry in 1930.

Chairman **Tower**. Senator Kennedy.

Senator **Kennedy**. Thank you very much, Mr. Chairman.

I, too, would like to welcome our witnesses here this morning.

MILITARY PAY

In looking over the various proposals on the people issue which General Meyer talked about in his opening comments, there are obviously a lot of choices and decisions that have to be made and priorities that must be set in formulating this particular budget.

I think the General has made a strong case, not only here this morning, but as I understand, has made a number of recommendations in the Army over a period of years on what he calls the people issue.

One of the people issues which I know the chairman of this committee has been interested in, and which other members of the committee and the Senate and Congress in general are interested in, is the pay issue.

I would be interested in hearing from you, General Meyer, how you rate that issue, and what kind of priority you give it, and whether you give it perhaps a higher priority than some of the other items that are included in this budget?

General **Meyer**. I give the pay issue the very highest priority. On a personal basis, I give it a higher priority than some other items I would be willing to trade off.

Senator **Kennedy**. Could you tell us?

General **Meyer**. I will not give my personal feelings, but I would be willing to go back and lay out the tradeoffs necessary.

I also understand the thrust of what the Secretary of Defense and the President are trying to do, which is trying to ensure that if there is a cap put on pay, that everybody shares equally in it. The impact of putting a cap on soldiers' pay is something that we have to be very sensitive to.

My own view is that if soldiers believe that it is a one-time shot, the cap is not going to have any hemorrhaging effect on the Army. But there will be good NCO's who will use that as the basis on which they will decide to get out.

I don't know if General Cavazos has had a chance to talk to any of his troops or people on how they come out on that, but everywhere I go I ask the soldiers what they think.

General **Cavazos**. Sir, personally, I want the soldier to get everything he possibly can get. He deserves it.

Unfortunately, people here in the Department of Defense have to face hard decisions. The greatest quality of life we can give our soldiers is the tools to fight with. Those are very hard decisions the Secretary of Defense must make—a pay raise or equipment to fight with.

It is very frustrating down at our level. Our soldiers need a pay raise. But they also need the wherewithal to stay alive on that battlefield.

Senator **Kennedy**. I think that this is something that you spoke to very eloquently in an earlier response to the questions about the importance of modernization and about good and effective equipment.

General Meyer also talked about the percentages that are overseas and at home, about morale and other issues that are involved; obviously there are trade-offs that have to be made.

Perhaps it is difficult to do so this morning, but I would be interested in your own areas of priority. If you were making the recommendation, yourself, what priority you would give that issue versus some of the other items that are being requested.

I don't know whether you want to be specific or you would like to give this more thought.

General **Meyer**. I will provide an answer for the record, but the thing that I would plead as we go through this again is, don't salami slice it.

In other words, you need to take a look at what those functions are. If you decide you are going to reduce the budget, let somebody decide the functional areas that need to be reduced as opposed to just going in and attacking a single program. Otherwise, you will end up with less than you think.

Every time you go down and take one of those programs out vertically, you have a magnifying effect on the Army's total readiness and capability.

[The information follows:]

BUDGET PRIORITIES

Priorities are often expressed in terms of the four components of defense capability—force structure, readiness, modernization and sustainability. We have made a conscious decision to forego significant force structure increases and to apply ourselves to making balanced improvements in the remaining components in the following priority: readiness, modernization and sustainability. However, it must be recognized that an inextricable linkage exists among these components and that any resource allocation decision affecting one will be felt in the others. As a result, we attach particular importance to our modernization program, which can make immediate, direct contributions to both readiness and sustainability. For example, new, modern weapon systems clearly make the Army more ready, and at the same time are often easier to sustain and maintain on the battlefield.

Senator **Kennedy**. That makes a lot of sense and I think that is a convincing argument. I would think the pay aspect of it and the general kind of support programs provided for servicemen and women is extremely important.

You also mentioned, I think, General, in one of your other comments, or the Secretary did, about the airlift and sealift capability and that this is not an item which is included in the Army budget.

As I understand it, we now have the fast sealift for one division and airlift for two divisions. Is that correct?

General **Meyer**. Yes, that is correct. The SL-7—the first four will be completed in 1984 and the others in 1986.

RAPID DEPLOYMENT FORCE

Senator **Kennedy**. I thank the Chair.

With regard to the rapid deployment force, however, as I understand, there are more Army divisions, Army and two Marine divisions, is that right?

General **Meyer**. That is correct.

Senator **Kennedy**. What should we be looking for here? What are the implications if the policy commitment has been made for a rapid deployment force of that dimension and we find within the requests that are being made in other budget considerations provisions for the sealift division and airlift for more. What does that mean to you in terms of the capability of the rapid deployment force?

General **Meyer**. That means that the rapid deployment force in its total capability is going to be less rapid and less deployable until the additional airlift and sealift is available.

Senator **Kennedy**. What more can you tell us about that? Are we looking at the mid-1980's, late 1980's?

General **Meyer**. The congressionally mandated mobility study which you asked for was done by the JCS. They came back and said we are short about 100,000 short tons in sealift capability of being able to move people and equipment.

What we need to do, in our judgment, is to look for ways to improve that strategic mobility. The reason I say that is, and let me go back to the opening comments of the chairman—sort of the indirect, underlying rationale behind the question by Senator Jackson—and that is, as you have more to do out there, the way you can respond is with more rapidly deployable forces that are more capable and better able to be commanded and controlled.

That is how you get leverage. You lose leverage if you are not able to get around—get there "firstest with the mostest" as Nathan Bedford Forrest said. You need to have the ability to rapidly deploy troops to do that, an ability that saves us in the long run by giving us the opportunity to break that link that might carry us from crisis to conflict.

SCOUT HELICOPTER

Senator **Kennedy**. I would like to cover two additional questions in this round.

One of the things you have been interested in is the future of the Army, what it is going to look like 10 or 20 years from now. Questions are then raised about significant expenditures for various weapon systems, and whether those will be obsolete when deployed.

One of the questions raised is that of the Army's Scout helicopter OH-58 improvement program. CBO says it will cost 1.8 billion in the next 5 years. Yet the Army is planning a new heliopter for the nineties.

I will be interested in what you have to say about particular weapon systems, but I am more interested in your own view about the general problems we are going to be facing over the period.

That is, as you see the role of the Army changing over a period of time, what guidance you can give us about what ought to be expended in major outlays for equipment which may or may not be obsolete in a relatively short period of time.

General **Meyer**. The helicopter issue is an issue that I think Congress should be proud of and so should the Army. It is taking an existing system—nothing new—but taking an existing system and upgrading it instead of going out and buying new equipment.

At some point in time out in the future, when you get remotely piloted vehicles, the effectiveness of these kinds of helicopter systems will be enhanced. In the meantime, if we go to war tomorrow or the next day, soldiers will have to go to war and win. We have to have something on the battlefield to do that.

What we need to do in the future is to really push technology to give us the opportunity to make breakthroughs.

I will also tell you that the M-60 tank will be on the battlefield in the year 2000.

STATUS OF FORCES IN CENTRAL AMERICA

Senator **Kennedy**. Just a final question, General. Can you give us some idea about how many Army personnel there are in Central America? Would you rather file that for the record?

General **Meyer**. I will have to file that for the record.

Including Panama, it is probably about 4,000, but that is because we have a large component in Panama.

Senator **Kennedy**. If you could, in the Central America area?

General **Meyer**. Yes, sir.

[The information follows:]

STATUS OF FORCES

General **Meyer**. U.S. forces are located in Panama, Puerto Rico, and Guantanamo Naval Base, Cuba. U.S. forces in Panama are under the command of U.S. Commander-in-Chief, Southern Command (USCINCSO). These forces, totaling approximately 9,200 individuals, include one Army light infantry brigade, one composite Air Force wing, Navy forces, a Marine Barracks, tenant support units, and the headquarters staff. Breakout by Service is 6,880 Army, 1,840 Air Force, and 480 Navy/Marine Corps. [Deleted]

Approximately 2,000 U.S. Navy, Air Force, Coast Guard and Marine Corps personnel are stationed at Guantanamo, Cuba, for the purpose of operating Guantanamo Naval Base. The Naval Station at Roosevelt Roads, Puerto Rico, has approximately 2,200 personnel assigned for operation of the base. In addition, there are approximately 15,700 U.S. Army National Guard and U.S. Army Reserve personnel in Puerto Rico and the Virgin Islands and 1,250 U.S. Air National Guard personnel in Puerto Rico. There is no current plans for changes in these forces. [Deleted].

Aside from forces stationed in the Caribbean Basin and Central America, there periodically are Air Force and Naval forces transiting the area. The following military personnel are assigned duties with the Defense Attaches and Security Assistance Organizations in the Caribbean Basin and Central America. These are Defense Department positions and are not Service peculiar.

Country:	*(Military personnel)*
Belize	2
Costa Rica	3
Dominican Republic	8
Barbados	4
El Salvador	13
Guatemala	7

Country—continued:	*(Military personnel)*
Haiti	4
Honduras	15
Jamaica	6
Mexico	12
Nicaragua	5
Panama	11

The following U.S. Marine Corps personnel are attached to American Embassies in the locations indicated to perform duties as embassy security guards.

Country:	*(USMC personnel)*
Barbados	6
Guatemala	17
Cuba	8
Jamaica	9
Nicaragua	8
Mexico	12
Nassau	6
Panama	15
Haiti	8
Costa Rica	9
El Salvador	18
Dominican Republic	8
Honduras	9

Senator KENNEDY. I will also submit some questions, Mr. Chairman.

Chairman TOWER. Senator Warner.

Senator WARNER. Thank you, Mr. Chairman.

I welcome the opportunity to be present as we have one of the finest teams that has ever represented the Department of the Army in the form of Secretary Marsh and General Meyer.

General Meyer, it is no secret to you, you and I have had private conversations. You sent your Chief Deputy over to see me on the question I raised with the Secretary of Defense which is picking up some interest now, namely, what are the effects of a 5-percent reduction in the total Active Forces of the United States?

I am not suggesting how you allocate them among the various components with a commensurate buildup in the Guard and Reserve.

I raise this issue because while I intend to join with our good chairman and other members of this committee in trying to obtain the strongest defense we can in terms of authorization and new programs and dollars, we have to prepare ourselves for some of our colleagues coming forward with cuts.

All too often those cuts come in the form of procurement accounts, late-at-night-let-us-cancel the B-1, M1 tank, MX, on and on, again in these programs.

I think we have to prepare ourselves to look at all the areas of the Defense budget and priorities where in fact, if the cuts come, they must be received.

So, I am forcing a study independently on the area of reduction in the end strength with the buildup in the Guard and Reserve and I do that because of my own research which shows the following.

RATIOS BETWEEN ACTIVE AND RESERVE COMPONENTS

Throughout the world these are the ratios between active duty and Reserve and Guard components. For example, the European neutrals, for every active person, there are eight in the Guard and Reserve. That is Austria, Finland, Sweden, Switzerland.

Warsaw Pact, for every active there are 2.3 in the Reserve and Guard.

The Soviet Union, 1 to 1.4.

NATO, for every active, there is 1.1 Guard and 1.4 Reserve.

The United States is totally out of balance. Our ratio is for every active person we have four-tenths of a Reserve or Guardsman.

Why has this developed through the years? Why can we not now begin to start a trend to reverse that so that this Nation comports more with the defense structures of our allies and indeed our potential adversary?

Secretary **Marsh**. Senator. I share with you the need to strengthen and increase the Guard and Reserves. I think there has been a significant effort occurring along that line in the last several years. In fact, the National Guard strength last spring was at its greatest strength since 1967.

In reference the statistics from other nations that you quoted, you are dealing with countries that in effect really don't have to deploy. That creates a very different requirement from that of the U.S. Armed Forces.

You also are dealing with countries—Soviet Union bloc countries—that by statute require continued participation in the Reserves after training, usually to age 50. That also makes it somewhat different.

I think you are witnessing now a number of very significant innovations in the U.S. Army that are proving highly effective.

First, the Capstone arrangement which alines units to what we call the gaining command; second, the roundout concept; and third, the partnership concept. All of these programs are making a very significant inroad into what we would call a good sound total force.

IMPACT OF BUDGET REDUCTIONS

Senator **Warner**. I appreciate that, Mr. Secretary, but do you agree with my general thesis that if cuts have to be made, they should not impact totally on modernization and that is procurement?

Secretary **Marsh**. Yes; I agree with that statement. But I have very serious concerns about a reduction-in-force structure of the Active Force, because I believe it will impact very adversely on our being able to fulfill our commitments.

I think a force reduction would require a drawdown of our forces in overseas areas. That will seriously impact on some of our national security responsibilities.

Senator **Warner**. If you were confronted with the decision whether or not we grant the pay raise or have an active duty cut, which cut would you make?

Secretary **Marsh**. I support the pay freeze, Senator, which is governmentwide. If we have a catchup bill the following year, I would go with the pay freeze.

Senator **Warner**. Do you join in that conclusion, General Meyer? In other words, if confronted with an alternative of a pay freeze versus a cut in Active Force strength, which would be your choice?

General **Meyer**. I would want to pay the soldiers more. I think there are better ways to do it than that.

Senator **Warner**. You differ with the Secretary on that?

General **Meyer**. Yes, sir. May I address facts?

Senator **Warner**. Surely.

DIFFERENCE IN ARMIES

General **Meyer**. You asked a question. You asked why are they different? Why are the armies different? Why is there a difference between the numbers that are in the active and reserve?

Senator **Warner**. We are totally out of phase with the other nations.

General **Meyer**. Somebody who did the research for you did not do a very good job on the ratio. Right off the top it is 775,000 to 780,000 on active duty. We have just about 700,000 in the Guard and Reserve. That is not a one to point-four ratio.

Senator **Warner**. This was the total of the U.S. force.

General **Meyer**. For the Army it is not like that. For most of those other nations, most of their reserve is Army. We are about one to one. I think if you look up and down those figures, you will find our Army is about in sync with the rest of the nations of the world as far as ratios are concerned.

The second reason is conscription versus volunteers. When you have conscription, you bring people in for a short period of time. When you spit them out, they are in the Reserve. We had that when we had conscription.

The third reason is geographic, where you are able to live on the land. In Germany, their people can go into the Reserve and they are immediately available on mobilization. Ours have to be moved from here across an ocean to be committed somewhere around the world because we keep our Reserve in a central location.

I am not saying your facts are wrong, but you asked why are they different and those are three things as you look at the issue that everybody needs to keep in mind.

Senator **Warner**. Again going back to research, in 1980 this committee and others enacted legislation which tried to restore the comparability pay gap. I think it is essential we maintain the progress that we have achieved. That is why I am strong on maintaining the pay.

THE HOLLOW ARMY

In earlier years you raised the hollow Army concept. Now that has been pretty well taken care of. Am I correct on that?

General **Meyer**. Yes.

Senator **Warner**. The point I wish to make is that if we have cured the hollow Army concept in a 2-year period, if we are compelled to take cuts now, would it not be more advisable to take those cuts in terms of Active personnel strength rather than modernization, recognizing that most of your procurement programs are 5 to 10 years in duration?

If they are canceled, there are cancellation costs and other things that minimize the impact on budgetary savings. So I point out it seems to me we could recover from a reduction in personnel more quickly in the outyears than we could from slashing away at the procurement account and modernization.

General **Meyer**. Your thesis—that you could recover more quickly in the outyears—I believe is correct. But in the near term, you would be contributing to hollowness because of the turbulence in moving folks around. The impact on near-term readiness would be significant.

Senator **Warner**. I recognize that. You have to look at the overall threat. The point being if we have two unpleasant options, cutting back on modernization and cutting back on Active personnel, it seems to me we can recover more quickly from the personnel impact than we can from substantial reductions in the modernization program and the Army above all, in my judgment, of the services is further behind in modernization than is the Navy and the Air Force.

Am I not correct in that?

General **Meyer**. Yes, sir, we are further behind in modernization.

Senator **Warner**. So it is your answer that given the choice, the personnel would have to take the brunt of this cut as opposed to Army modernization?

General **Meyer**. I don't believe the Army should have to take any of the cuts.

Senator **Warner**. I think that is clear.

General **Meyer**. We got less than the other services to start with. The thing I am concerned about is the tremendous turbulence this will cause at a very critical time in history.

Senator **Warner**. My time is up.

May I submit additional questions?

Chairman **Tower**. Yes.

Senator Exon.

PAY FREEZE AND TARGETING MILITARY PAY

Senator **Exon**. Thank you, Mr. Chairman.

Gentlemen, I want to join my colleagues in welcoming you here. I would like to follow up on some of the previous questions that have been asked with regard to the pay freeze on the military which many of us on this Committee are very much concerned about.

It is my understanding that the proposed pay freeze that the administration has come forth with was not recommended or even endorsed by the uniform Chiefs, but I recognize that you are basically going along with your Commander-in-Chief.

If something is done in this area, as I expect it might be done by the Congress if we decide that we cannot go along with the freeze, I would ask this of every one of you.

Would you think if we are going to have some kind of increase, would it be better to have a percentage across-the-board increase or do you think since we are limited in funds, it might make more sense to target that in certain areas?

If you are for targeting, what sectors of the enlisted and officer personnel should we particularly concentrate on in regard to targeting?

Secretary **Marsh**. Senator, let me make a comment.

One, I support the pay freeze. I think that is very clear from what I have said.

In reference to targeting—the concept of targeting pay—I think you will generally find that the Army has taken a position in favor of targeting and I have favored targeting.

I would have to think about how I would answer that question if you have a pay freeze and were to have a very small percentage increase like you are talking about. I think that could have some impact on how I might feel about targeting.

But I generally feel that some targeting toward the higher ranks, particularly the higher enlisted ranks, gives you the greatest benefit. But if you have a freeze, then I might have a different view. I would have to give that some thought and consideration.

Senator **Exon**. Thank you, Mr. Secretary.

Could I have comments from the general?

General **Meyer**. I favor targeting. I also have the same concerns now. We would have to go back and look at it.

For the young soldier who decides to come into the Army at the private or private first class level, I don't believe it will make much difference to him—the $12 or $13 more he is not going to get.

It is at the middle grade NCO level that I think the targeting should be focused. We should also look at one of the areas we have been ignoring—the warrant officer area. We have a similar problem there.

We use warrant officers because of their skill to do a lot of things. We have never spoken out for that warrant officer group. It is a group that, if I had a choice of targeting, I would target in the center and not out at the extreme end. Those of us who have been in the Army 25 or 30 years, I think, could tighten our belts a little bit.

The brand new people coming in, I think, would look at it that way. I think that the middle-grade crew will be so critical to us in the future. That is where I would target.

Senator **Exon**. As I understand you, what you are saying is if we decide to target, and you are not saying whether we should target or not, that it would be in the senior enlisted grades and warrant officers, is that right?

General **Meyer**. That is where I would target.

General **Cavazos**. Sir, none of these things unravel evenly. I hear the question, "if you have to take a cut, would you rather have structure or money?"

The Chief said he couldn't turn his back on his soldiers, which is obvious. It is extremely unfair to put us in a situation to make that judgment.

I definitely am a structure man because I have to see our soldier rotate with 13, 14, and 15 months in certain MOS's—Military Occupational Specialties—if you slash structure, that young E-5, E-6, and E-7—critical technicians who are sergeants—are going back and forth between the States and overseas assignments and they will say, "No more, sir, that is enough trips from Monmouth to Europe," and that I understand.

When you start cutting structure to do certain things—this is not directly to your question, but it is involved in it—you see, it does not come out very evenly. Our difficulty is that it should not be a question of one or the other.

I think most soldiers, if you asked how many wanted to reduce the size of the Army for a pay raise—God bless them—most would say, don't reduce the size of the Army, but pay for the equipment that we need to fight with.

The system is asking some very hard questions. I personally, as a field commander, find what they are asking for is very, very modest. In fact, the Chief of Staff of the Army is not doing a good job in giving enough money to me.

General **Meyer**. I agree with that.

Senator **Exon**. General Keith.

General **Keith**. I am in full agreement with what the Chief has said. Given that choice, I believe that the middle grade NCO, warrant officer and middle-grade, captain vintage officer is where commitment is being made or not being made. That is the problem I think we should address first.

Senator **Exon**. One last question, Mr. Chairman.

The reason we ask these questions is not to put you on the spot, but to try to get as much input as we can from you people who are experts. We have to pass laws up there. If we don't agree with the administration's position, as we don't from time to time, we want to be moving in the right direction.

FUTURE PAY INCREASE

Let me ask one more question you might not have thought about.

If you wish to reserve your comment, I understand that. If you give me an "offhand" opinion, I think it might be helpful as we plan and talk about legislation among ourselves.

I think it is fair to say that the majority of the Armed Services Committee at least, and probably our colleagues on the floor, are prepared to do something other than a freeze. There have been several proposals which we are looking at.

Which do you think would be most beneficial to troop morale, a freeze for 6 months and then a 4-percent raise, targeted or across the board; or a 3-percent targeted or across-the-board raise starting the first of the fiscal year?

In other words, 3 percent for 1 full year or 4 percent for 6 months? Do you have any "offhand" opinion on what you think would be the best for morale.

Secretary **Marsh**. My view is that the best thing for morale would be assurance of a catchup bill that would take up the total slack that has occurred in ensuing years.

I can't give you any real guidance regarding the two options you suggested—the 3- or 4-percent alternatives.

General **Meyer**. Any visible support would help convince the soldier that those who are responsible for him care. I don't know how you would be able to split between the two, sir. It would be pretty hard to do.

Senator Exon. Do the others have comments on that?

General Cavazos. I want to echo that any visible support of our soldiers—1 percent, 2 percent, anything—tells the soldier that he is appreciated and we understand his needs.

Senator Exon. Mr. Secretary, I don't want to quarrel with you, but those of us who serve on Armed Services and on Budget are not particularly struck with the proposal advanced by the Secretary of Defense that we freeze this year and we make it up next year, at least I don't think that makes sense for a lot of reasons.

No. 1, I don't think a freeze at this particular time is good for morale. That has been brought out here.

Second, if I were talking about the outyears, we are looking at higher dollar expenditures and probably higher deficits than we are facing right now.

Therefore, putting it off for 1 year seems to some of us who have been actively involved in this matter that that is a step in the wrong direction. We may have some additional problems by that time.

We are certainly going to be faced, if we proceed with the administration's recommendation, with the average person in the Armed Forces being lower paid on a comparability basis than they were 2 years ago after all the struggles that we made to catch up.

I don't expect you to change your position, Mr. Secretary, but I just don't agree with it.

Secretary Marsh. I understand it and it is helpful to have your perspective. I am sure you understand why I have a different perception of Mr. Weinberger's views than you do, sir.

Chairman Tower. Senator Humphrey.

SUPPORT OF PAY FREEZE

Senator Humphrey. Thank you, Mr. Chairman.

Secretary Marsh, you are supporting the pay freeze.

Have the Service Secretaries been directed by the Secretary of Defense to support the pay freeze?

Secretary Marsh. I have had no directive, Senator, about that, but I understand the need for it. It was a step that was taken reluctantly. I happen to know why the President wanted to make it Government-wide. I understand and appreciate the problems that would occur if there is a significant exception to Government-wide application of that freeze.

Senator Humphrey. I am trying to determine whether your support of the freeze is simply that of a loyal subordinate or if you had independently reached a conclusion?

Secretary Marsh. I think it is a sound decision. I have a feeling, Senator, that if the military had been excepted, we might be taking a lot of heat the other way. There is a downside to being excepted. We would be targeted for considerable criticism by the rest of the Federal Establishment if we were excepted. That would further impact adversely on Defense.

Senator Humphrey. Thank you.

IMPROVEMENTS IN THE HOLLOW ARMY

General Meyer, in your testimony you emphasized that 3 years ago you described the condition of the Army as being hollow. You called it a hollow Army.

In referring to your statement of 3 years ago, are you saying the Army is no longer hollow?

General **Meyer**. I am saying in General Cavazos' command, where 3 years ago we had zeroed out platoons and zeroed out squads, where we had equipment that was not there, where our National Guard and Army Reserve were significantly under strength in all their organizations, where we were short 10,000 noncommissioned officers, those basic problems have been corrected.

There are still elements of hollowness and those are the ones I identified—especially the equipping of the Army. That is why Senator Warner is trying to do something to be sure we do equip the Army. I think that is the part of it that needs to be continued. I think General Cavazos is working on it.

Senator **Humphrey**. Some of the hollowness has been filled in, but some remains, is that correct?

General **Meyer**. That is correct.

Senator **Humphrey**. By what date will we have filled the hollowness?

General **Meyer**. You will never fill the total hollowness to my satisfaction. I think you ought to get rid of me if we did, because I am always trying to insure we become better and better.

If we are able to get stability in the 5-year program—stability of procurement in a 5-year program—and it continues the way we are heading today, we will have not only the new equipment but also the sustainability that is essential to support us throughout that 5-year program.

Senator **Humphrey**. Your statement of 3 years ago was alarming. In my view, it was accurate and it helped to shape events, I think such that we have made some real progress. We have increased real spending for the Army and the other Services and that real increase in spending has brought us real improvement according to your testimony.

That is a success story that I don't think is widely appreciated or even known among the public. As you know, gentlemen, the support for the President's defense program has deteriorated from 2 or 3 years ago. I think part of the problem is the people don't realize the improvements that have been purchased with these real increases in spending.

General **Meyer**. As I said at the start, I believe the American people have gotten their money's worth out of the $153 billion we have received in the last 3 years.

Senator **Humphrey**. You were understrength 3 years ago when you called the Army hollow.

Are you understrength today?

General **Meyer**. We are not understrength compared to what we are authorized. We are still understrength, as has been pointed out, in the National Guard and Army Reserve against their wartime requirements.

We are understrength against what I would consider Active Force wartime needs. We have attempted to avoid having units out there that are understrength. Instead, we have taken cuts in total numbers of units.

General Cavazos can tell you, first of all, that he is last in resource priority for a lot of reasons—primarily because we try to maintain our overseas forces at highest priority. He is back here. When you make a cut, it is made in his organization because we try to retain our overseas forces at the highest readiness capability, and that is what you would expect.

General **Cavazos**. I am 5-percent understrength right now, sir. That is the best we have ever been.

Senator **Humphrey**. So, you have made substantial improvements in the area of force levels. Is that correct, in strength?

General **Meyer**. Yes, sir.

Senator **Humphrey**. What about 3 years ago when you called the Army hollow? You had a critical shortage of NCO's.

What is the situation today?

General **Meyer**. We expect to have the NCO shortfall eliminated by the end of this calendar year, except for a few critical special slots such as cryptologists and intelligence people.

Senator **Humphrey**. So the critical shortage of NCO's is almost cured?

General **Meyer**. Yes, sir.

Senator **Humphrey**. Will be cured?

General **Meyer**. Except for some MOS's.

Senator **Humphrey**. You were short of equipment, of all kinds 3 years ago when you called the Army hollow.

How are you doing in that area?

General **Meyer**. We still have a long way to go in the equipping area. The equipping area is the area we have to improve. We still have soldiers out there who have trucks that are older than they are—soldiers in the Active Army, the Guard, and the Reserve. It is a total Army problem, it is not just an Active Force problem.

Senator **Humphrey**. How about equipment not in the major items category?

General **Meyer**. We are doing better there. We have put a significant amount of resources into trucks, materiel handling equipment, and into the things that don't have visibility.

General Keith, as you know, is responsible for that area.

General **Keith**. We have made a very significant improvement in those kinds of items, Senator.

One of the things that we did to get well and continue to do is to look at rounding out complete units with all items of equipment. Our buy program is structured on balanced equipment needs as opposed to getting what might appear to be the highest priority individual items of equipment. So, we are modernizing in a balanced sense.

General **Meyer**. In one area we still have a major shortage, and that is FM radios. That is the kind of small item that if you go out in the field today and visit soldiers, they will tell you is one of the highest priorities—a better radio.

Senator HUMPHREY. Three years ago when you called the Army hollow you had inadequate levels of ammunition. How is that today?

General MEYER. Improving, but not as good as it needs to be.

Senator HUMPHREY. What level of improvement has there been?

General MEYER. As far as our wartime sustainability is concerned, we have added some wartime sustainability. An area we have not done as well in has been in training ammunition.

Senator HUMPHREY. We all know that there has been a very substantial improvement in the caliber of newly attracted personnel and that the Army and the other services are doing much better in retaining the best of them. It remains to be seen if it will be effective if this pay freeze is realized.

In any case, the real increases in salary and defense spending have had a very profound effect on the caliber, morale readiness, courts martial, other abuses, all those indices, has it not?

General MEYER. Yes, sir.

Senator HUMPHREY. So we have made very substantial progress. I would like to suggest, Mr. Secretary, that the administration quantify these improvements and begin to point them out to the American people. There are some very significant improvements. We had a very bad situation on our hands several years ago. We made some very long strides, but I don't think the American people know about it.

General MEYER. That is a very good suggestion, Senator. We will do that.

Chairman TOWER. Senator Levin.

SHORTFALLS IN CRITICAL SKILLS

Senator LEVIN. General Meyer, we asked the Army for a list of the special skills in which there are current personnel shortfalls. We were given about five pages of titles.

Are you familiar with that list?

General MEYER. I don't know which one you have, Senator.

Senator LEVIN. Are there dozens of titles where we do have shortfalls in critical skills?

General MEYER. There are dozens of titles if you go into specific MOS's, but the key areas that I am talking about are intelligence, crypto, and some medical. Some CMF's—Career Management Fields—are pretty well filled, but there are isolated areas where you need highly skilled technological people.

As far as numbers are concerned, they are now very small.

Senator LEVIN. I will submit for the record this five-page document we received from the Army. I estimate that there are perhaps 105 specialty codes where we do have shortfalls.

Chairman TOWER. We will include it in the record at this point.

[The information follows:]

INFORMATION PAPER

Subject: Shortage MOSC's, February 3, 1983.

Facts: 1. Shortage in each specialty code is based on data as of 31 Dec. 82. Data for each skill will vary monthly due to changes in authorizations and/or actual strengths.

2. Specialty codes listed below are short in grades E-1 through E-9.

Mos	Title	Authorized	On hand	Percent fill
00B	Diver	55	40	73
00J	Club Manager	695	594	86
00Z	CMD Sergeant Major	1,287	1,090	85
05D	EW/Sigint Ident/Loc	500	449	90
05H	EW/Sigint-IMC	2,063	1,527	74
05K	EW/Sigint N-M Intep	1,116	1,053	94
11H	HV Anti-Armor WPN	7,677	7,207	94
11M	FV infantryman	1,412	89	6
12C	Bridge Crewman	2,449	2,256	92
12E	ADM Specialist	906	842	93
13F	Fire Support Sp	4,818	4,503	93
13R	FA Firefinder Rdr Opr	347	288	83
13W	FA TGT Acq Sr Sgt	189	95	50
13Y	Cannon MSL Sr Sgt	856	733	86
15D	Lance CRMBR/MLRS Sgt	2,210	2,002	91
15E	Pershing Msl CRMBR	2,242	1,982	88
16P	ADA Short RG Msl CRMN	2,489	2,173	87
16T	Patriot Msl CMBR	153	36	24
17K	Gnd Survl Rdr CRMN	1,512	1,321	87
19Z	Armor Senior Sgt	904	791	88
21G	Pershing Elect Mat Sp	286	201	70
24L	IH Lnch/Mech Sys Rep	210	143	68
24T	Patriot Sys Mech	169	59	35
26C	CBT Area SVL Rdr Rep	334	258	77
26D	GCA Radar Rep	102	83	81
26Y	Satcom Equip Rep	554	503	91
27Z	Bal/Lc/Lad Sys MN CH	88	73	83
33S	EW/Intep Sys Rep	1,141	994	87
34E	NCR 500 Computer Rep	24	14	58
34K	IBM 360 Rep	92	79	86
34Y	FA Computer Rep	209	156	75
35B	Elect Inst Rep	127	107	84
35K	Avionic Mech	547	458	84
35U	Biomed Equip Sp Adv	375	333	89
43E	Parachute Rigger	1,110	929	84
44B	Metal Worker	1,432	1,314	92
45B	Small Arms Rep	471	414	88
45N	M60A1/A3 Turret Mech	903	776	86
45T	ITV/IFV/CEV Trt Mech	332	247	74
46N	Pershing Elect-Mech Rep	160	144	90
51G	Materials Qual Sp	86	69	80
51Z	Gen Engr Supv	306	262	86
52C	Util Equip Rep	1,507	1,357	90
52E	Prime Power Pdn Sp	226	187	83
52G	Trans 7 Distr Sp	206	110	53
54E	NBC Specialist	5,549	5,112	92
55D	EOD Specialist	773	724	94
55R	Ammo Stk Con & Act	355	65	18
57E	Laundry & Bath Sp	711	627	88
57H	Cargo Sp	1,294	1,195	92
61Z	Marine Senior Sgt	20	15	75
62H	Conc & Asphalt Eq Op	285	253	89
62J	Gen Const Equip Op	901	779	86
63S	Hvy Wveh Mech	1,344	1,013	75
63T	ITV/IFV/CFV Sys Mech	4,450	3,833	86
63W	Wveh Rep	2,890	2,493	86
67H	Obsn Apln Rep	162	110	68
68F	Aircraft Electrician	430	363	84
72E	CMBT Telecom CTR Op	5,415	4,929	91
72H	Cen Ofc Opn Op	52	44	85
73Z	Finance Senior Sgt	208	166	80
74Z	Data Processing NCO	171	139	81
75Z	Personnel Sgt	3,002	2,814	94
91G	Behavior Science Sp	995	926	93

Mos	Title	Authorized	On hand	Percent fill
92D	Chemical Lab Sp	132	89	67
92E	Cytology Sp	39	31	79
93J	ATC Radar Controller	843	738	88
94B	Food Service Sp	19,791	18,205	92
95B	Military Police	21,675	19,733	91
95C	Correctional Sp	1,592	1,442	91
96C	Interrogator	538	415	77
96H	Aer Sns Sp OV-ID	98	81	83
97C	Area Intel Sp	136	49	36
98J	EW/Sigint NC Intcp	852	619	72
98Z	EW/Sigint Chief	279	210	75

3. Specialty codes listed below are short in grades E-5 through E-9. Some specialties are also short overall but have more severe shortages in the higher grades.

Mos	Title	Authorized	On hand	Percent fill
05g	Sigsec Specialist	411	318	77
12B	Combat Eng	4,793	4,577	95
12F	Engr Trveh Crmn	418	389	93
13E	Cannon Fd Sp	1,092	859	79
13M	Mlrs Crmn	15	1	7
15J	Mrls/Lance Op/Fd Sp	198	167	84
16J	Def Acq Radar Op	323	234	72
16S	Manpads Crmn	1,505	1,153	77
17C	Fa Tgt Acq Sp	612	558	91
19E	M48-M60 Armr Crmn	7,862	7,075	90
24M	Vulcan Sys Mech	277	202	73
24N	Chaparral Sys Mech	161	112	70
24T	Patriot Sys Mech	82	23	28
25L	An/Tsq-73 Op/Rep	206	170	83
27B	Lcss Test Sp/Lance Rep	220	210	95
27E	Tow/Dragon Rep	325	270	83
27G	Chapparral/Redeye	217	178	82
27N	Faar Rep	102	95	93
31E	Field Radio Rep	799	579	72
34H	Admse Rep	146	100	68
34Y	Fa Computer Rep	106	58	55
36K	Tac Wire Op Sp	806	687	85
45D	Sp Fa Trt Mech	43	37	86
45E	M1 Abrams Trt Mech	29	26	90
55G	Nuc Wpn Maint Sp	398	374	94
55X	Ammunition Inspector	178	163	92
61B	Watercraft Op	345	282	82
61C	Watercraft Eng	180	153	85
62E	Hv Const Equip Op	874	819	94
63D	Spfa System Mech	782	645	82
63N	M60A1/A3 Tank Sys Mech	1,429	1,327	93
63Y	Track Veh Mech	383	335	87
67W	Acft Quality Control Supv	474	433	91
74F	Programmer/Analyst	1,116	1,018	91
82C	Fa Surveyor	1,201	1,142	95
96B	Intel Analyst	1,726	1,326	77
97B	Ci Agent	913	586	64
98C	Ew/Sigint Analyst	1,253	1,085	87
98G	Ew/Sigint Voice Intep	1,463	1,318	90

THE DEFENSE STRUCTURE

Senator **Levin**. Did I understand you to answer Senator Kennedy that you would provide for the record a list of items which you would consider lower priority than a pay increase?

General **Meyer**. No, sir, I don't believe I said that.

Senator **Levin**. Will you submit that for the record?

General **Meyer**. What I tried to say was I think that is the wrong way to cut the budget. I believe somebody has to look functionally at what we should do at the Defense Department and not get into a particular service until that is done.

I believe you should be looking at what we are trying to do with our armed forces and decide the functional area you are going to cut. Look at functional areas as opposed to going in and saying, General Meyer, what do you want to swap for this or that.

Senator **Levin**. Are you willing to help search for a functional area?

General **Meyer**. That is part of my responsibility. If that were asked, it would be a proper role.

Senator **Levin**. Will you submit your recommendations on functional areas?

General **Meyer**. I would only do it as part of a broader addressal by the JCS.

CONSULTATION ON THE PAY FREEZE

Senator **Levin**. I gather, General, you were not consulted on the pay freeze issue before it was announced?

General **Meyer**. I had an opportunity, Senator, to tell both the President and the Secretary of Defense what I thought about the importance of pay for soldiers.

Senator **Levin**. Were you consulted on the pay freeze before it was announced?

General **Meyer**. Nobody came to me and said, "I am going to announce it today," but there was no question in the mind of the President or Mr. Weinberger how I felt about that issue. So they didn't need to call me up. They already knew what my position was.

Senator **Levin**. You do feel you were consulted?

General **Meyer**. As I understand the term, consultation, I feel I was consulted, yes.

Senator **Levin**. Secretary Marsh, do you feel you were consulted on that pay freeze issue?

Secretary **Marsh**. From time to time there had been discussions in reference to pay in the Defense Resources Board. Clearly, Mr. Weinberger is aware of my views on that subject.

Senator **Levin**. Were your views, your personal views, given to Secretary Weinberger on the pay freeze issue before the decision was announced the same as you have expressed them today?

Secretary **Marsh**. Senator, I think I have accurately described my views. You know, when the President of the United States makes a decision that is Government-wide, I don't expect him to get me on the phone and call me up to find out whether he should do that or not.

I understand and appreciate the reasons for the freeze. I think it is in the national interest and I think the course chosen is a sound one.

Senator LEVIN. I am sure you understand the reason why it is important to us that we have the best thinking of our Service Secretaries and military people. I am wondering if the advice you gave the President before he announced the pay freeze is the same.

Secretary MARSH. I don't want to give you the impression that I had an immediate conference with President Reagan on the subject. I did not. I think that was a sound decision and I fully support it.

Senator LEVIN. Did you express your views on the relative priorities of a pay freeze versus other possible defense cuts prior to the announcement of the pay freeze?

Secretary MARSH. We didn't have that particular opportunity, Senator.

CATCH-UP PAY RAISE

Senator LEVIN. On the pay freeze issue you indicated that you could support it provided there was a "catchup" commitment, if I understood your answer correctly.

Is there such a commitment?

Secretary MARSH. My view is that the impact of the freeze and its adverse consequences for the Army will be minimized substantially if there is assurance of a catchup bill. There are some areas where it is impossible to determine precisely what the impact of the pay freeze will be but I think you should look at it in two ways.

Look at enlistments for the first time enlistee. I do not believe it is likely to impact significantly there.

If there is going to be an impact, I think we are more likely to see it in retention. If there is a catchup bill, I think that will minimize the impact on retention.

Mr. Weinberger I think on every opportunity where he has appeared before congressional committees on this subject has strongly stated the Defense position in favor of the catchup bill.

Senator LEVIN. Do you think you have a commitment from the Secretary of Defense that there will be a catchup bill next year?

Secretary MARSH. Obviously the decision whether there will be a catchup is not final. I think we have a firm commitment from Mr. Weinberger that he will propose it.

Senator LEVIN. That he will propose a catchup?

Secretary MARSH. That will be determined in part by the inflation indices and other things. What that precise amount will be, I don't know.

Senator LEVIN. You said that providing the total slack, to use your words——

Secretary MARSH. I am talking in terms of comparability—falling behind.

Senator LEVIN. In general terms, without getting into the dollars since no one knows the rate of inflation, you feel there is a commitment from the Secretary of Defense that he will propose to the Congress a catchup bill?

Secretary **Marsh**. Yes. I have read his testimony before this committee.

Senator **Levin**. Did he not make a similar statement to the Congress last year?

Secretary **Marsh**. I am not aware of any statement, but my experience in dealing with Mr. Weinberger is whatever he says he will do, he is going to do or he will try to do.

Senator **Levin**. He said before the House Defense Appropriation Subcommittee in August 1982 that "Beginning in fiscal year 1984, we support military pay raises which match civilian sector wage increases."

Secretary **Marsh**. You have to raise those questions with Mr. Weinberger. He has made a number of statements. I have heard him make them personally, and I have read his statement to the committees. There is no question in my mind that he will come to the Congress with the request for a pay raise. That will certainly be his desire.

Senator **Levin**. Do you feel you have a commitment from the President to present a catchup pay proposal to the Congress next year? You indicated Mr. Weinberger has made that commitment. Do you feel the President has made that commitment?

Secretary **Marsh**. I think you would have to direct that question to someone other than myself.

Senator **Levin**. Do you know of any such commitment?

Secretary **Marsh**. There may be, so I really shouldn't speak to it.

Senator **Levin**. Are you personally aware of it?

Secretary **Marsh**. I said, sir, I am not aware of it, but there may be.

MODERNIZATION OF MISSION EQUIPMENT

Senator **Levin**. General Meyer, according to Secretary Weinberger last August, the Army continues to lag behind the other services in modernization of mission equipment.

Would you agree with that?

General **Meyer**. Yes, sir, I would.

Senator **Levin**. So you have further to go really than the other services?

General **Meyer**. Yes, sir.

Senator **Levin**. Yet despite that fact, the Army's share of defense spending, and here we are talking about the share vis-a-vis other services, has declined from 1982 to 1983 and from 1983 to 1984. Is that correct?

General **Meyer**. Yes, sir.

Senator **Levin**. How do you explan that?

General **Meyer**. To be honest, I am a failure. I am serious.

Senator **Levin**. You don't come across as a failure.

General **Meyer**. One of my greatest failures is not to have been able to articulate more clearly what the Army needs to be able to do the things that it is charged with doing.

Senator **Levin**. So as far as you are concerned then, the overall allocation between the services is not reflective of their various modernization needs, what position they are now in and what they need?

General **Meyer**. That is my personal view, yes.

Senator **Levin**. Thank you.

My time is up.

Chairman **Tower**. Senator Quayle.

Senator **Quayle**. Thank you, Mr. Chairman.

Mr. Secretary and General, I first would like to join in the accolade made to you, General Meyer. You are not a failure. I think we will all miss you when you leave in June.

DEFENSE MANAGEMENT

I notice on page 8 at the conclusion of your testimony you said there are better ways for a nation to go about managing Defense business.

Could you specifiy one particular thing we might do to better manage our Defense business?

General **Meyer**. The biggest thing we should do to improve the way we do Defense business is to provide stability to the program.

First of all, if I went around and asked each Senator at this table what their view was of the role for the Armed Services, everybody would have a slightly different one, I am sure, as far as strategy and the purpose of those Armed Forces. There isn't any common agreement on what the Armed Forces are supposed to do. Everybody sort of looks at it differently.

I think we need to have a consensus or an agreement between the Congress and the administration as far as the basic purpose behind the Armed Forces—the general direction they are going—and then provide stability to the programs that exist.

Senator **Quayle**. How are we going to get this consensus? What should we or the Department of Defense be doing that they are not right now?

General **Meyer**. I think there are several things that have to occur.

First, I believe there has to be a better appreciation between the two of us as far as the stategy itself is concerned—the basic strategy. That is a common problem. It is one we have to address.

For example, I believe this committee should be the committee which is really charged with laying out the rationale behind the Armed Forces—the broad policy that our Nation should pursue with our forces.

Senator **Quayle**. Over your years of service, do you feel that there is a decline in the consensus of what the strategy is going to be?

General **Meyer**. Absolutely.

Senator **Quayle**. Do you think we are at a worse point today in really appreciating and understanding and having a consensus?

General **Meyer**. Yes.

Senator **Quayle**. Why is that?

General **Meyer**. Because it was easy before. Before it was easy everywhere. We had strategic nuclear preponderance. Therefore, our conventional forces were able to operate freely. We had economic capability so that resources were available to do most of the things that we needed to do. We had in Congress the ability of the various committees of Congress to be dominant in specific issues.

Today—I am just telling you this from my last 8 years in Washington—authority is spread so much that committees are impinging on each other's area of responsibility. As a result, everybody and their brother has a different view on who is charged with what, and all this is giving the American people less defense for the dollar.

Chairman **Tower**. You broke the code, General. [Laughter.]

Senator **Quayle**. There are no Russians in this room, Mr. Chairman.

DEFENSE POSTURE

Let me try to get a consensus of not a strategy, but what the functional areas of the overall Department of Defense are.

Could you define the three or four functional areas on a priority basis, what you understand to be the defense posture for our country?

General **Meyer**. First, there is the basic strategic issue, that is, insuring we have adequate capability so that we are not held hostage and our allies are not held hostage by some other nation with their strategic capability.

Second, that we have in the broadest terms, adequate conventional forces which are able, in conjunction with our allies, to prevent the Soviet Union, the Warsaw Pact and others who would seek to impose their will on others from being able to do that.

Let me break the conventional force issue down into some of the functional areas. I believe then you have to decide what you need in the way of conventional forces. You need in being forces—those are Air forces, Army forces, Navy forces, Marine Corps forces, and Coast Guard forces—that are unique to many of the specific challenges.

You need strategic mobility to be able to move them around quickly. You need command and control—both for communications and because of the way we are organized—in order to insure that they are able to respond effectively.

Then you need a sustaining base which permits us—and particularly this Nation which has to project power across seas and through the air as no other nation has to do—to have that sustaining base from which can flow men and equipment.

Those are just some of the functional areas you need to take a look at in relation to whatever policy or strategy we are charged with doing.

It is not military that decides this strategy. The decision to do this or that is in every instance decided by you, hopefully in conjunction with the administration. Our responsibility is to come back with the kinds of forces that give us the best capability to do that. That is an area you asked about earlier—how can we do a better job.

I think every year we should be charged to come over to you and say how much more capable we are of carrying out the national strategy with the resources you gave us the last year, and how much more capability we are going to have with these resources next year. This way, you start to get into a meaningful dialog instead of talking about specific hunks of equipment.

Senator **Quayle**. Under the breakdown of functional areas under the conventional, I think you have force structure, basically force structure first and then mobility, command and control, and then sustaining bases of operation.

What category would you put pay under?

General **Meyer**. That cuts across all of them. It is basic to taking care of the people. You can call that sustainability.

Senator **Quayle**. The way you broke that down you have that last.

General **Meyer**. I don't have it last. I just broke down strategic and conventional.

Senator **Quayle**. Is there any order of ranking?

General **Meyer**. I did not try to rank them. I don't think you can. I think every one is important.

Senator **Quayle**. That is the problem. As we try to develop this consensus, it really is a problem for us who are groping with this fundamental problem of what we should be doing, to have a full appreciation of what the strategy is, having a full understanding of where you are coming from and where others are coming from because of their reluctance to sort of prioritize for us.

If we can't get that information, it makes our job more difficult.

General **Meyer**. Senator, it is not easy to prioritize among those categories for reduced resources. It seems to me that instead of trying to prioritize among those categories, if there are basic disagreements on policy issues, then you must identify those most critical policies. And if you decide there are only *x* amount of dollars, you direct us which policies to execute.

That is a better way to do it than your sitting over here trying to determine between two or three of those kinds of categories—which you are not qualified to do.

I don't mean this derogatorily. It is not something for which you have a background to do. We are charged with doing that for you. I am charged by statute to come over and explain to you the best way to do this with the piece of that pie.

Senator **Quayle**. There is certainly a two-way street as far as coming over and explaining to us. We have to have an appreciation of where you are going and why you are going in that direction.

The dialog we are having here underscores the fundamental problem we are having. I think it is amplified with other people, not you in particular. I think your candor is refreshing and good. This is a problem I am having and others.

I don't think I am speaking alone on this. Just by the give and take here, it is a tremendous problem. We simply do not have a definite knowledge of where we are going, what are the priorities. Maybe we will have to take more time. It is something that you ought to understand, too.

General **Meyer**. I understand it.

SPECIAL OPERATIONS FORCES

Senator **Quayle**. I would like to turn to another subject and I know the Secretary has talked a lot about it very proudly and that is the Special Operations Forces. As a matter of fact, he has encouraged me to go down there to see what they are doing.

I notice in the posture statement you talk about:

> The United States and its allies must continue peacekeeping efforts such as those in Lebanon and Sinai to prevent overt conflict from erupting and escalating. Additionally, we may employ our Special Operations Forces to provide small unit training to foreign governments.

Have we looked into providing some of these Special Operations Forces training, advice, and counsel to Lebanon?

General MEYER. Yes, sir, we have.

Senator QUAYLE. We are working with them on this?

General MEYER. Yes.

Senator QUAYLE. How is it going? Can you give us a status report on how it is going?

General MEYER. We currently have, from the joint point of view, the Director of the Defense Security Assistance Agency working on this. I sent over a colonel to be at the center of this.

We are providing assistance at the present time through what we call mobile training teams that go over and assist the Lebanese Armed Forces in the development of their capability. Team compositions are based on whatever the requirements are. They asked for specific teams to come over and assist them in logistics areas and in other areas.

We also are taking advantage of the Marines over there to do some immediate training. We are working directly with them in this area. Some types of forces are going over because they have the language capability.

Senator QUAYLE. My time is up. I do have a couple other questions I would like to submit for the record.

Chairman TOWER. That may be done.

Senator Bingaman, we admire your patience. It was not too long ago I sat where you are sitting.

BALLISTIC MISSILE DEFENSE PROGRAM

Senator BINGAMAN. I appreciate your staying here to hear my questions, Mr. Chairman.

Let me ask about one program, Mr. Secretary and General Meyer. I want to ask about the ballistic missile defense program which is on the strategic side, and under the Army's authority or jurisdiction.

Could you describe what the Army is asking for and justifying for that in that general area?

Secretary MARSH. Let me speak to this in a general way and perhaps General Keith might want to expand on my remarks.

Basically, the Army's efforts in BMD are research and development. It goes with, as you indicated, our strategic defense capabilities. The work that is being done requires very significant experimentation in new technologies.

We can give you a broad cost range of what we think these programs are going to run, and the types of programs—some of which are quite sensitive—that we are doing.

General Keith might wish to amplify.

General MEYER. Before he does that, let me talk to the basic issue because this is part of our strategic program.

Our current ballistic missile defense program is geared toward defense—in the atmosphere—of the MX Dense Pack Proposal made by the President.

We are also experimenting in the outer atmosphere with what we call an overlay system. The reason I say this is because whatever decision is taken on the final basing mode of the MX will have an impact upon what our final ballistic missile defense program is.

I just want to be sure you understand that what is before you now is based on that logic. We will have to readdress our program based on the final decision by the President and by you regarding the final basing mode of the MX.

Senator **Bingaman**. General Keith, did you want to elaborate on that?

General **Keith**. I really don't have anything more to offer, sir. My command is in a supportive role in the BMD program. That program manager is the officer who reports directly to the Chief of Staff. They are collocated with my missile command.

Beyond what the Chief has said, our support is in a state of limbo right now, awaiting decisions. I have nothing else to add.

Senator **Bingaman**. Let me ask one follow-up question of General Meyer.

If the Congress were to decide not to employ the MX missile, would there be reduction in your requested funding for this ballistic missile defense program?

General **Meyer**. I would fight that because I believe were that decision to be made, some sort of ballistic missile defense would become even more important.

What I would hope would happen would be that the resources that are currently devoted to the endoatmospheric environment—near to the Earth—would be refocused in outer space to give us a capability to have some kind of defensive shield for our Nation. So, I would believe that we should push in that other direction were that decision taken. I would fight for that. I don't know how that would end up, but that would be the side on which I would fight.

Senator **Bingaman**. That is all I have, Mr. Chairman.

Chairman **Tower**. Thank you, sir.

ROLE AND MISSIONS OF THE ARMED SERVICES

I would just like to comment. I for one appreciate the fact that the commitments that involve military implementation and the roles and missions of the Services are driven largely by civilian policy.

Although I know some of my colleagues think differently, you should be expected to answer questions about what would you give up if you had to give up something. I would think before you answered that question, you would have to have some guidance from civilian authority as to what commitments we would cease to honor, what vital interests abroad we would cease to defend, what foreign policy objectives we would cease to support before you could make a decision about how your roles and missions would be tailored to meet that change in policy and what would be required in that instance.

We have organized this committee along roles and missions lines. I think it is important that we not get into the business of fair shares for all as far as the Services are concerned, but think in terms of what we have to do and what is required to do it.

If it requires a higher Army expenditure and lower Navy expenditure, so be it, because it is a function of the military to implement public policy in the best means possible and the defense dollar has to be spent in a way to give us the maximum capability to:

No. 1, provide for the security of the United States, and

No. 2, defend our vital interests abroad, and

No. 3, support our foreign policy objectives.

REDUCTION IN PERCENTAGE OF REAL GROWTH

Now it has been suggested that the real growth projection for national defense in fiscal year 1984 of 10 percent is too high. Some have suggested this should be reduced to 5 percent.

Mr. Secretary and General Meyer, what is the potential impact on the Army of reducing your real growth by half?

Secretary Marsh. Senator, I think it would have an enormous impact on the Army if we had to go back and take 5 percent out. If we are told to do it, we will do it, of course.

We believe the Army program that is structured here really is at the margin, based on the many demands that the U.S. Army is required to undertake. If you look at the planning guidance that is given to the Army, it is rather interesting.

It says:

> U.S. Army forces, in conjunction with other U.S. forces, must be able to defeat a Warsaw Pact attack on NATO and maintain the territorial security; deny Soviet control of the Persian Gulf and all associated resources; support our allies in Asia; maintain strategic reserves against a counterthreat in the Western Hemisphere; and respond to other threats to the U.S. interests anywhere in the world.

When you look at that broad sweep of requirements, you recognize why the assessment by the Joint Chiefs, and their recommendation as to what the Army's force structure should be, is significantly larger than the force structure we currently have. We find ourselves in a position of not being able to meet the commitments that we have, sir.

General Meyer. I would reinforce that and add one thing. That is, this man over here (General Keith) would have such instability in those programs that every one of the programs we have now brought under control would go out of control because we would have to winnow down, cut, pay closing costs on closing out programs.

We would get less resources and less defense for the dollar in the near term if we took that approach.

Chairman Tower. Any further comment?

General Keith. Senator, I would like to add one more thing about the importance of stability.

My Chief has said it a number of times. We will never be able to present programs to the Congress that we are proud of from a cost control, well-managed sense, unless we get people under contract and hold them to that and make them perform. Every time we reopen a contract, we open the door to more chaos and obvious cost problems.

One other thing I wanted to add—and there was a question about it—concerns our ability to sustain deployment in any one of the contingencies that we are talking about. The ability to sustain today is marginal at best. Even if we maintain the program that exists now, we will just begin to get to the point where the risk is acceptable, from a logistical support aspect, by the end of that 5-year period.

We are in a very critical period for the Army and anything that turns our program down just extends that period of criticality.

Chairman **Tower**. Thank you, gentlemen.

Do you have anything further?

Senator **Exon**. Nothing further, Mr. Chairman.

Chairman **Tower**. General, thank you very much. I think this has been an extremely useful hearing. It has been particularly useful to have, in addition to the Secretary and the Chief of Staff of the Army, two of the Generals that are on the cutting edge of the business. It has added a great deal to the hearing.

I hope we didn't discommode you gentlemen too much. You are not as accustomed to this sort of business as the Secretary and General Meyer are, but I must say you have acquitted yourselves very well. I think it has added considerably to the instruction of the committee.

Thank you very much, gentlemen.

General **Meyer**. May I make one comment. I have to say this. I appreciate your support.

I have said that in the Army, there are three officers who—when I go to war—I would like to have one on my right and one on my left. I certainly have one of those three on my left right now.

When you talk about qualified people out there leading our soldiers, I would like to underscore what you said about General Cavazos because he has that capability. This is war here. It is not as bad now as it used to be, but it is good to have somebody on your flank to protect you.

General **Cavazos**. Do I have any right to say something at the end, sir?

Chairman **Tower**. Go ahead.

General **Cavazos**. I would not have done this if General Meyer had not said what he said. This is not pandering to the Secretary or Chief of Staff of the Army in any regard because I am not looking for any other job. I have the best job in the U.S. Army.

We are going to terribly miss "Shy" Meyer. He is a superb soldier. The changes that he has brought about are really extraordinary. I guess I will personally feel the loss as much as anybody.

I just thought you wanted to hear from a subordinate about the support we get. I am the last command in the U.S. Army to get resources and they really are stretching it, but I am getting all the help from the Chief of Staff of the Army I possibly can get.

Chairman **Tower**. I think everybody on this committee would concur with those remarks.

Senator **Exon**. Mr. Chairman, adding ad lib remarks, there was one reference I heard this morning by the Chief of Staff, himself, where he described himself as a failure.

I don't consider him a failure and I know none of his colleagues do in anything he has tried to do and I know of no member of this committee who feels that way.

So, for the record, it may have been a self-deprecating statement on your part, General, but it was not taken very seriously here.

Chairman **Tower**. Thank you, gentlemen.

[Questions with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR JOHN TOWER, CHAIRMAN

LIFT CAPABILITY

Senator **Tower**. Mr. Secretary, I would like for you to provide, for the record, details on the Army's lift situation. What are your current requirements? What are your current capabilities? What programs do you have to address any shortfalls? Recognizing that the Air Force and Navy are responsible for much of your lift, would you care to discuss this situation briefly?

Secretary **Marsh**. In response, both intertheater (strategic) and intratheater (tactical) mobility are addressed from an Army perspective rather than a multiple service viewpoint. Army forces rarely deploy separately, but rather as part of a Joint Service force in response to various contingencies.

In the stragetic lift arena, the Army's requirement is for sufficient air and sealift to rapidly project our forces during the early stages of conflict and to continue to provide follow-on and sustaining support.

Intratheater requirements call for the flexible and rapid movement of men, equipment, and supplies forward into the theater of operations to engage the enemy.

The Army is the major user of both Air Force airlift and Navy sealift assets. Although force requirements vary by scenario, in no case can closure dates be met. Serious shortfalls exist in the deployment and their sustainment. The Air Force and Navy have developed programs which provide partial solutions.

With regard to those programs that address lift shortfall some progress is being made as evidenced by the funding of strategic air and sealift programs, aerial refueling, as well as cargo off-load systems. A notable initiative is the funding of C-17 RDT&E which represents a major step toward enhancing both inter and intratheater airlift. Of critical importance to the Army is that sufficient funding be provided from fiscal year 1983 to fiscal year 1985 to insure that a fiscal year 1991 Initial Operational Capability is achieved for the C-17.

There continues to exist a need for intertheater air and sealift above that which is currently programed. The current airlift program for the KC-10, C-5B, and Civil Reserve Air Fleet (CRAF) is moving in the right direction to meet Army mid-term objectives. However, it must continue beyond the current program to achieve the 66 million ton-miles per day capability recommended by the Congressionally Mandated Mobility Study (CMMS).

The Army also requires congressional support for its efforts to complete the Prepositioned Materiel Configured to Unit Sets (POMCUS) program. The Army just cannot afford the amount of airlift required to move Division Sets (DS) 5 and 6 to meet its rapid reinforcement objective of 10 divisions in 10 days to NATO.

Also essential is support for Host Nation Support (HNS) agreements which represent a viable alternative to Active and Reserve Component support units which would have to be airlifted to satisfy early combat service support requirements.

Significant capability to meet Army fast sealift needs is in the Navy's SL-7 acquisition and conversion program. Continued congressional support is needed for fiscal year 1984 funding for the conversion of the remaining four ships. An additional 100,000 tons of fast sealift is also needed by the Army to provide flexibility and capability to rapidly project forces. This amount of sealift was recommended in CMMS and is now undergoing a thorough analysis during the DOD Sealift Study. This 100,000 tons of sealift must be rapidly loadable and unloadable, e.g., Roll-On/Roll-off (RORO) sealift, and capable of meeting our deployment requirements to Southwest Asia. The final results (expected in May 1983), will be the basis for future DOD programing actions. The requisite costs associated with those programs will then be available for review.

The Navy is already investigating alternatives to increase early available strategic sealift to offset this shortfall. Action is ongoing to increase the size of the Ready Reserve Fleet (RRF) from its current ship configuration to 77 by 1988 to meet Army early deployment needs.

Substantial activity has also taken place with regard to cargo offload and discharge systems. An example is the Navy Auxiliary Crane Ship (TACS) program to meet the off-load requirement for containers and heavy unit equipment in theaters which lack developed port facilities. However, the six TACS, funded in the Navy program to discharge U.S. Marine Corps units, appear to be inadequate to meet the Army's reception and discharge requirements.

Army, in conjunction with the Air Force and Navy, is working together in seeking specific near term procurement programs to deploy and sustain Army forces. Additionally, the Army is working closely with the Air Force and Navy to develop long term airlift and sealift acquisition and modernization plans that look at the Army's requirements for the mid and long term. These plans, with OJCS and OSD support, will be helpful in determining the priorities for the years ahead. Congressional support must be continued to maintain the momentum beginning to be generated. Unless current efforts are continued, the ability to rapidly deploy Army forces will be jeopardized.

ABILITY TO PAY PROCUREMENT OBLIGATIONS IN THE OUTYEARS

Senator TOWER. Mr. Secretary, there is a feeling among some who would reduce defense spending, that the Army cannot afford the procurement costs for all of the new weapons systems that you are fielding—especially in the next few years. How do you answer those critics?

Secretary MARSH. The procurement costs of the new Army weapons systems that will be fielded in the next few years are affordable. The Army is executing a balanced procurement and operations and support program within the planned Total Obligation Authority designed to meet the Army's needs of acquiring, fielding, and operating new equipment.

Senator TOWER. Mr. Secretary, your procurement programs for fiscal year 1984 total about $19 billion—nearly ⅓ of your total budget. In rough terms O&M accounts for another ⅓ of your budget, and military pay the final ⅓. Your justification data forecasts procurement for fiscal year 1985 totalling $24.4 billion—an increase of 28 percent. How can you accommodate such growth in procurement without reductions in other areas?

Secretary MARSH. The Army's total procurement budget for fiscal year 1985 is estimated to increase by approximately 27 percent. A major contributor to readiness, our number one priority, is the availability of equipment—procurement dollars are used to insure equipment availability through the purchase of existing end items as well as new modernized equipment systems. The Army is continuing to provide a balanced program in terms of capability and readiness with special emphasis on equipping the total force.

The Army recognizes the need to program and budget operations and support dollars for its equipment modernization effort. Equipment fielding O&M,A dollars have increased from fiscal year 1983 to fiscal year 1984 by $404 million and are estimated to increase proportionately in consideration of fiscal year 1985 field requirements. Further, of the $24.4 billion programed for fiscal year 1985 procurement, $2,307 million is for spares and repair parts.

Based upon the resources made available, the Army's fiscal year 1984 budget reflects a balance between the capital accounts and the operating and sustaining accounts. As development of the fiscal year 1985 budget becomes more refined the Army will continue to attempt to achieve a balance among the capital, readiness and sustaining accounts within affordability guidelines.

DIVISION AIR DEFENSE (DIVAD) GUN

Senator TOWER. Mr. Secretary, the Sergeant York division air defense gun has come under considerable fire in recent months. Would you enumerate a few of the prevalent criticisms and give us your response to these criticisms?

Secretary MARSH. The Sergeant York system has been criticized recently for a variety of reasons which are not reflective of the overall status of this program. The focus of the criticism has been that the system is too expensive, cannot adequately perform its mission, and that system reliability is poor. The Sergeant York system in order to be able to provide adequate air defense protection for our forward maneuver units must be able to quickly and accurately deliver fire on sophisticated targets. Additionally, it must be able to survive in that environment. Sergeant York has a sophisticated radar and fire control system and is provided with armor protection in order to provide that air defense coverage. We feel that although these capabilities are expensive, they are totally necessary to fill this requirement. A less capable, less expensive system won't do the job. With regard to the Sergeant York's ability to adequately perform its mission, we are confident that the system can defeat the threat it will face. There has been speculation that the threat can stand outside the Sergeant York engagement range and defeat the system. This is not an accurate assessment. The battlefield environment will force the threat to move well within Sergeant York's capability in order to acquire targets and bring effective fire. Sergeant York has demonstrated the ability to react quickly and defeat both the standoff helicopter and fixed-wing targets.

We have had some problems with our reliability testing but we feel that the system we are producing will meet our reliability goals when it is issued to the soldier. This program has been developed using an accelerated acquisition strategy which has saved a great deal of time and money. Part of the risk involved in this strategy has been the concurrency of testing and production. This is compounded by the fact that we have only two prototypes and over the past two and one-half years they have been subjected to almost nonstop testing. The reliability results reflect the wear of these prototypes and a shortage of spare parts to repair problems when the prototypes have failures. We have focused our attention on insuring that the production systems will meet the reliability requirement. We have taken several steps to increase our confidence in the system reliability. We have increased the subsystem qualification tests, we have added additional production units to our reliability tests and from a contractual point of view we feel the contractor will meet the goals. Our fixed-price contract requires Ford Aerospace to deliver a system that meets our goals or retrofit the system at his own expense. Additionally, the contractor has an incentive clause in the contract which provides $6 million if he can deliver a system which exceeds the goals. These additional management steps make us confident that the system will meet or exceed the reliability goals.

Senator TOWER. How much does the DIVAD cost per copy?

Secretary MARSH. The procurement unit cost of the DIVAD system in fiscal year 1984 dollars is $4.1 million.

Senator TOWER. What makes this system so expensive?

Secretary MARSH. The expense involved in DIVAD is related to the necessity to have a system which can react quickly and effectively. In order to provide the required reaction time and deliver accurate fire on the target, a sophisticated acquisition and fire control system needed to be included in the DIVAD gun system. Approximately half the cost of the DIVAD system is related to the radar and fire control computer. To provide the forward maneuver units the air defense coverage that is required, these sophisticated subsystems are needed.

Senator TOWER. Discuss the vulnerability of this system. Do the Soviets have the capability to target the DIVAD radar?

Secretary MARSH. The Soviet Union has developed the capability to deliver a variety of ordnance on any of our systems which employ radar emitters. This includes DIVAD. This is the reason we have developed both technical and tactical methods of providing the DIVAD system with the means to survive and effectively operate. From a tactical standpoint the DIVAD radar will operate only when the air defense battle situation warrants its employment. From a technical standpoint the system radar has a number of features which make it survivable even if an antiradiation missile is launched as a result of being targeted. The system can discriminate an antiradiation missile as it enters the DIVAD acquisition envelope and as a result the radars shut down causing the antiradiation missile to lose guidance and miss the target. DIVAD can then quickly return to action and immediately begin providing air defense coverage.

Senator TOWER. Why not substitute a product-improved mobile Vulcan air defense gun system for DIVAD?

Secretary MARSH. The product-improved Vulcan (PIVADS) is not adequate as a substitute for the DIVAD gun. The product-improved Vulcan is being pursued as an interim system for our light divisions and is being upgraded prior to being turned over to our reserve forces. It does not have the range, survivability, or reaction time to adequately perform the mission for which DIVAD is designed. The DIVAD gun with its increased effectiveness and survivability is able to provide the air defense protection our forward maneuver forces require.

Senator TOWER. General Meyer, are you satisfied that the Army is getting a "fair share" of available Defense resources—dollars and manpower?

General MEYER. The fiscal year 1984 Army Budget was developed in consonance with the Secretary of Defense's guidance. Aided by the Joint Chiefs of Staff, the Secretary of Defense translates broad national objectives and policies into military objectives and strategies. Prescribed strategies form the basis for developing the military force structure around which resource allocation decisions are made. The

Army's budget level is directly related to any changes in national objectives and policies.

ARMY SHARE OF THE BUDGET

Senator **Tower**. General Meyer, the Army's share of the Defense budget has been going down in recent years. According to my figures, the Army got about 25 percent of the Defense budget in the late 1970's. But since 1980, your percentage has dropped to something about 23 for fiscal year 1984. Are these figures approximately accurate?

General **Meyer**. Yes.

Senator **Tower**. How do you explain this reduction in the Army's share of the budget?

General **Meyer**. The Army's percentage of the Defense budget is based on national security requirements as defined by the President, Secretary of Defense, and JCS. Taken in context with these national security requirements the Army's percent of the budget has declined.

Senator **Tower**. General Meyer, according to my calculations, based on the final Defense numbers in the Continuing Resolution, the Defense budget had real growth of about 8.7 percent for fiscal year 1983. How much real growth did the Army realize in the fiscal year 1983 budget?

General **Meyer**. The Army's real growth in TOA for fiscal year 1982-83 was 3.7 percent.

Senator **Tower**. I'm not implying from this line of questioning that our defense budgets should be put together on some sort of "fair share" logic. To the contrary, Defense budgets need to address those forces and systems necessary to meet our national security requirements. But these trends do appear to reflect the composite judgment of the Defense establishment that our national security commitments require an increased share of available Defense resources be applied to other than Army programs. General Meyer, from your perspective as a member of the JCS, has there been a conscious judgment in the Defense establishment that the Army share of the budget could be reduced?

General **Meyer**. There has been no conscious effort to reduce the Army's share of the Defense budget. The Army's share of Defense resources results from the consideration of the total requirements for overall national security.

Senator **Tower**. I would like to get comments from each of you on the pay cap. I understand the President's need to freeze the pay of all Federal workers—civilian and military. I happen to feel quite strongly, however, that the case for some pay raise for our military personnel—especially our career enlisted force—is compelling. I won't ask you if you support the pay cap—I know the answer to that—but let me ask that you give me some measure of how much concern does the pay cap cause you. Are you concerned that the pay cap may have serious consequences in terms of retention or recruitment?

Secretary **Marsh**. The precise impact of the proposed pay freeze for fiscal year 1984 is unpredictable. However, our studies have revealed that the highest quality soldiers are most affected by changes in economic and/or social status and we may expect a 5-8 percent decrease in high quality careerist reenlistments.

Any pay increase this year needs to be targeted to gain the maximum force manning benefit. The pay adjustment should be targeted at critical career decision points.

General **Meyer**. I concur with Secretary Marsh. With youth unemployment running so high, as it is, we are not faced with as serious a challenge in recruiting as in retention; however, that should not be taken to mean that we do not have a recruiting challenge. Experience has shown us that higher mental category personnel are the first to leave. They are also the least likely to come in when military pay lags behind private sector wage growth.

Senator **Tower**. Are you comfortable that you can manage the potential pay cap problems with the promise of a catch-up pay raise in fiscal year 1985?

Secretary **Marsh**. The precise impact is unpredictable. So long as the individual soldier is sharing equitably with other Americans in eliminating the budget deficit and getting the national economy back on track, I would expect that we will be able to maintain our momentum. Unfortunately, there was a pay cap last year and it appears certain that there will be one again this year if there is a pay raise provided at all. Soldiers are certain to have some doubt about the promise of a catch-up increase in 1985. Soldiers' expectations were raised significantly by the pay increases of October 1981 and 1982. They are now very concerned about promises of future actions. At this time, neither the Army leadership nor Congress can guarantee a catch-up increase. Nevertheless, the Army strongly supports the Secretary of Defense's intent to seek a catch-up as well as full comparability increase in fiscal year 1985.

Senator **Tower**. Mr. Secretary, would you comment on S. 275, the Tower, Thurmond, Jepsen pay bill? I don't expect you to support it, but would you comment on the strengths and weaknesses of the bill as you see them?

Secretary **Marsh**. In my opinion, the strength of the Tower, Thurmond, Jepsen pay bill lies in the bill's emphasis on targeting a pay raise. However, the proposal lacks specific focus on our career force; retains a residual pay compression, and does not increase a second lieutenant's pay. Indications are that the economy is turning around. In a recovery period, giving no money increase to second lieutenants will leave us in a noncompetitive position for high quality officer accessions. That would not hold good promise for the Army's future. Finally, I do not consider delaying a capped pay increase for 6 months to be a good choice.

BRADLEY FIGHTING SYSTEM TOW-2 SYSTEM

Senator **Tower**. General Meyer, recently you notified the committee that you do not intend to put the improved sight for the TOW-2 missile on the Bradley. Review that decision for the committee, exactly what did you decide to do and why?

General **Meyer**. The Bradley TOW 2 modification was more than an improved sight. It consisted of the addition of a thermal tracking capability for the Bradley TOW guidance system. Although only the TOW 2 missile has a thermal beacon, the current Bradley TOW system will fire and accurately guide any of the three types of TOW missile. The thermal tracking capability would allow accurate guidance of the TOW 2 missile through obscurants and electro-optical countermeasures. To achieve this capability requires the replacement of the integrated sight unit and the command guidance electronics, a minor modification to the TOW missile launcher, and associated changes in wiring, cabling, and turrent distribution box controls. These hardware changes generate changes in vehicle integration, training materials, maintenance procedures, test equipment, and manuals. The original cost of this program approached one billion dollars. Even with reduced scope options, the cost of this improved guidance for the Bradley was unaffordable considered in the context of all Army requirements and programs. If the cost of this program can be reduced to an affordable level, the decision may be reconsidered.

Senator **Tower**. General Cavazos, let me ask your opinion on this decision. Does it make sense to field the Bradley without the full TOW-2 anti-tank capability?

General **Cavazos**. The TOW that is now on the Bradley Fighting Vehicle is a highly effective weapon and we need the Bradley Fighting Vehicle now to get on with our training. We are well into our new equipment training for the Bradley, to delay until fiscal year 1986 would significantly reduce our combat capability.

I understand the issue here is an affordability issue—that it is expensive retrofitting. I personally favor the TOW-2 on the Bradley, I feel it would significantly enhance our anti-armor capability.

Senator **Tower**. Why not eliminate all TOW capability from the Bradley?

General **Meyer**. The TOW system has proven to be an extremely accurate and deadly long range antitank guided missile system. Its use by Israeli forces in recent conflicts has confirmed its effectiveness against Soviet equipment. The TOW system on Bradley provides the same effectiveness. It provides mechanized infantry and cavalry forces with the ability to assist in the antiarmor battle, which is a necessity if our ground forces are to fight and win.

AIRLAND BATTLE

Senator **Tower**. General Meyer, a great deal of attention has been paid recently to the "AirLand Battle" concept which is intended to upgrade NATO's ability to deter aggression from the Warsaw Pact through conventional forces. Is there a role for long-range theater nuclear, tactical battlefield nuclear and chemical weapons in the "AirLand Battle" concept? What is that role?

General **Meyer**. The Army's AirLand Battle doctrine is consistent with NATO doctrine and strategy; however, the doctrine is applicable to the Army's deployment to any theater and employment in any battlefield environment. AirLand Battle doctrine emphasizes the application of conventional weapons; however, the doctrine fully recognizes that the Army must be capable of operating in any environment, including the nuclear and chemical battlefield. Our forces must be able to counter and use every element of available combat power and we must plan, train, and be prepared to operate on any integrated battlefield.

There is a multi-dimensional role for our nuclear and chemical weapons within the AirLand Battle concept. Primarily, our theater and tactical nuclear and chemical weapons are integral contributors to the deterrent force. The potential for our use of nuclear and chemical weapons presents a high risk threat to an enemy force. The proliferation of tactical weapons capable of firing conventional, nuclear, or chemical weapons affects the character of conventional combat. When there is a threat of the use of chemical weapons, enemy forces are degraded by being burdened with chemical protective equipment. A potential enemy must disperse his forces laterally and in depth or face destruction should the nuclear threshold be crossed. The enemy's dispersion on a conventional battlefield can then be exploited in accordance with our AirLand Battle doctrine. Finally, theater nuclear and tactical nuclear and chemical weapons play an important role in destroying or degrading the enemy's own nuclear and chemical delivery systems, his key command and control elements, his support forces in the rear of committed elements, the follow-on or deep-echeloned forces, and his reserves.

RETENTION OF PERSHING II AND GLCM

Senator Tower. General Meyer, how do you respond to the charge that the retention of Pershing II and GLCM in peacetime at a comparatively small number of air bases renders them exceedingly vulnerable to a Soviet pre-emptive nuclear strike?

General Meyer. The operational concept for both Pershing II and the Ground Launched Cruise Missile (GLCM) calls for a portion of these forces to be able to launch quickly at the direction of the Theater Commander. Both systems move away from their bases very early in any period of tension. The launchers disperse into small mobile firing units capable of autonomous operations. The GLCM main bases will contain hardened shelters to protect against a pre-emptive conventional strike, but not a nuclear strike. There is an element of risk in every system which our adversaries consider worthy of countering. This risk has been assessed for the GLCM and Pershing II, balanced against the cost and additional capability which the systems give us, and is believed to be acceptable.

DISPERSING THEATER NUCLEAR WEAPONS

Senator Tower. General Meyer, do you believe SACEUR should be given pre-delegated authority to disperse theater nuclear weapons in peacetime?

General Meyer. [Deleted.]

GLCM FORCE

Senator Tower. General Meyer, what is the rationale for dispersing our GLCM force into operationally individual "flights" of four launchers and 16 missiles apiece? Does this not reduce our 464 GLCM force to a mere 29 aimpoints on the battlefield?

General Meyer. Although the GLCM is an Air Force system, I understand from the Air Force that the rationale for dispersing the GLCM force into 29 flights is to increase survivability. Flight composition was determined by a trade-off between costs, maintaining an operational capability, and providing prelaunch survivability. Since the GLCM is an offensive weapon system and has a 2,500 kilometer range, its dispersal sites are concealed and located well behind the battle zone. While at a dispersal site, the launchers can be positioned [deleted] apart and still maintain their launch capability. This increases the number of aimpoints from 29 to 116.

CHEMICAL WARFARE

Senator Tower. Mr. Secretary, would you please highlight the fiscal year 1984 budget with respect to U.S. chemical warfare deterrent programs? How do these compare to Soviet programs and capabilities?

Secretary Marsh. The Army fiscal year 1984 budget request includes $792.4M in support of our chemical warfare (CW)/Nuclear, Biological, Chemical (NBC) Defense program. This budget request supports the administration's goal of a complete and verifiable ban on the development, production, and stockpiling of chemical weapons. Chemical warfare multilateral discussions and negotiations are continuing in the Committee on Disarmament in Geneva. Until such a ban can be obtained, our objective—consistent with existing treaties and international law—will be to deter the use of chemical weapons by developing both an effective defensive and an adequate retaliatory capability.

Seventy two percent of the budget request ($569.2M) will be used in support of defensive programs. Over half of this ($309.6M) will support Research, Development, Test, and Evaluation (RDTE) efforts to develop new technologies and material for detection, improved protection, decontamination, medical treatment, and antidotes. Military Construction, Army (MCA) support of $21.2M is requested to provide a safe and healthful environment for individuals working with chemical agents in laboratories at Aberdeen Proving Ground, Maryland. The remainder of the defensive program ($238.4M) is requested to procure protective clothing and equipment to outfit the total force for training and war reserve use.

Eighteen percent of the total CW/NBC Defense program ($147.2M) supports the development of a modern chemical retaliatory stockpile which is safe to transport, store, and use; sized to deny significant advantage; and credible to potential adversaries by being reliable, compatible with doctrine and weapons systems, and capable of deep strikes. The recommended program provides RDTE funds to develop a binary chemical warhead for the Multiple Launch Rocket System. The retaliatory chemical procurement program ($114.6M) supports the procurement of 155MM binary chemical munitions and preproduction costs of the binary Bigeye bomb.

Finally, the Army budget requests $76.0M in support of chemical demilitarization—the environmentally safe destruction of chemical munitions which are leaking or obsolete. Included in this amount is $10.2M in construction funding for the facility at Pine Bluff Arsenal, Arkansas that will be used to demilitarize our stock of the incapacitating agent BZ and BZ filled munitions.

No estimate of the dollar value of the Soviet chemical warfare program is available. However, by all measures—continued use of chemical agents, chemical troop levels, defensive equipment, or training programs and facilities—the Soviet CW program greatly exceeds that of the United States in scope and magnitude. The funds requested do not attempt to match the Soviet programs. The program seeks to provide the means for United States soldiers to successfully operate in a chemical environment and supports the retaliatory chemical modernization program, both of which are required to effectively deter chemical warfare.

BALLISTIC MISSILE DEFENSE

Senator Tower. Mr. Secretary, should the President recommend a road-mobile or off-road mobile basing system for a small ICBM, what would be the justification for spending $709 million in the fiscal year 1984 budget for the Ballistic Missile Defense (BMD) program?

Secretary Marsh. A fiscal year 1984 budget of $709 million is required to provide for and maintain a near-term capability that is relatively insensitive to the ICBM or basing mode being defended [deleted] such as nonnuclear kill, Airborne Optical Adjunct, and High Altitude Defense. This funding level is needed now to insure the availability of a credible defense option for the future should a ballistic missile defense be needed for survival of U.S strategic assets. The program is oriented to maximize the use of extensive research experience and ongoing efforts in the areas of optics, radars, data processing, and interceptors. These evolving technologies are applicable to defense of Minuteman (MM), or other systems such as the small road mobile ICBMs and other military or high value targets. Technical demonstrations are planned to insure the feasibility of integrating these new technologies into evolving system concepts which are responsive to the projected threat.

The fiscal year 1984 budget has $170.9 million designated for the Advanced Technology Program (ATP) and $538.4 million designated for the Systems Technology Program (STP).

The ATP continues a broadly based Research and Development (R&D) effort designed to exploit new and emerging technologies, seek improved cost-effective methods, advance the state-of-the-art for future BMD and avoid Soviet technological surprise. This program is not system specific and is providing R&D in areas which will be of value to the country regardless of basing or system decisions. Examples include: [deleted].

Of the $538.4 million designated for the STP, a relatively small amount ($40 million) is devoted to maintaining a hedge option for defense of Peacekeeper in CSB with a [deleted]. The remainder of the STP budget is not system dependent, but rather involves the development and demonstration of capabilities with broad applicability to other systems and basing modes. The program supports the President's strategic defense initiative in the development of technologies for evolutionary system improvements. In this regard the following are some of the planned efforts:

Establish the requirements for a prototype high altitude BMD system [deleted].

[Deleted] high altitude optical homing and nonnuclear kill with the Homing Overlay Experiment (first flight test conducted on 7 Feb 83).

[Deleted] an Airborne Optical Adjunct capability which is applicable to BMD.

Implement a terminal defense nonnuclear kill program that will allow a [deleted].

QUESTIONS SUBMITTED BY SENATOR STROM THURMOND

ARMY SHARE OF THE BUDGET

Senator THURMOND. Mr. Secretary, the Army's slice of the defense budget has declined over the years. In light of U.S. strategy, is the Army receiving funding commensurate with its tasks?

Secretary MARSH. I don't believe any nation, especially a nation faced with such global commitments and such diversified and growing threats as is the United States, would ever reach the point where it would have all the forces it needs to meet all of its requirements simultaneously. The costs of doing so would be enormous and fundamentally dangerous to the economic and political health of our free people. So, there are always going to be risks inherent in the disconnects between requirements and the resources available to develop the necessary military capabilities.

The Army's budget levels are certainly not as high as we would have liked and approach a point which fundamentally endangers the good beginning we have all made in revitalizing our defenses. And, as with the other services, the degree of risk is likewise higher than desired. For the Army, emergent Third World threats in the Western Hemisphere and in Africa and the instabilities which characterize the Mid-East/Southwest Asia regions, give our potential enemies many opportunities across the spectrum of conflict to threaten our interests and outflank our alliances. All these will occur while the growing and powerful land power of the Soviet Union dominates the Eurasian land mass and poses ominous challenges for the West.

The Army, in the face of these tasks, is confronted with a fundamental question: a larger albeit less capable Army more proportionate in size to the number of tasks or a more ready and capable Army. We chose the latter, foregoing force expansion and seeking a quality force ready for sustained land warfare anywhere, anytime. We believe a more capable, higher quality force, ready for rapid effective employment anywhere in the world, is a more credible deterrent and guarantor of our national interests. We are therefore building, within the resources available, a more excellent force which is strategically deployable, flexible, technologically competent, and tactically sound. In this respect, aside from some expansion in Special Operations Forces, the Army fiscal year 1984 budget continues to meet its most critical need of equipping the force. Although resources constraints necessitate a rate of modernization at a pace slower than planned, the Army is now in a period of transition, proceeding on a long awaited, well-conceived enhancement of the current force while acquiring the capability to fight and win on future battlefields.

READINESS STATUS

Senator THURMOND. General Meyer, you recently stated that all but one of your divisions are combat ready, yet only a fraction of your units have the highest C rating. With current spending trends, when will all your divisions and brigades reach C-1 status?

General MEYER. Given resource constraints, I do not anticipate that all of our divisions and brigades will achieve a C-1 rating. It is important to understand that the Army does not structure all of its divisions and brigades at a level where they can attain a "fully combat ready" or C-1 status. We provide the bulk of our major combat units lower authorized levels of organization which optimize use of our personnel and materiel resources. I do not state my mid and long-term readiness goals in terms of unit status. What we can do, and have programed to do, is to provide Army field commanders with sufficient resources—personnel, equipment and expendables—to permit them to transition from peace to war in time to meet their planned deployment schedules. Some units, such as those forward deployed or designated for the RDF, which must be prepared to fight first, are and will continue to be supported at the highest levels of authorization. The remainder of the Army is authorized less now, but the Army goal is to have the entire divisional force at the high authorizations (levels 1 or 2) by fiscal year 1989. By fiscal year 1999 our goal is to extend these high authorized levels beyond the divisions to include the non-divisional combat units.

NATIONAL GUARD AND RESERVE

Senator **THURMOND**. General Meyer, the Congress has historically shown an interest in supporting the equipment needs of the Guard and Reserve. Would you provide for the record a list of what equipment items in the current budget are designated for the Guard and Reserve?

General **MEYER**. Just under $1 billion is currently projected to go to the Guard and Reserve from the fiscal year 1984 Procurement Budget. The Army procures and addresses the equipment needs of the Reserve Components within the framework of the total Army. The Army has developed a reporting system that displays the quantity and dollars of new end item procurement that is currently projected to be delivered to the Reserve Components. The information on the fiscal year 1984 Budget will be available after 15 March 1983. Copy of the Army Reserve Components Equipment Distribution Report, dated March 1983, was provided to the committee separately. (Retained in committee files.)

FIRST SPECIAL OPERATIONS COMMAND

Senator **THURMOND**. General Meyer, I believe that you have advocated a unified command for our Nation's Special Operations Forces and you have made an initial step within the Army by establishing the 1st Special Operations Command at Fort Bragg, N.C. Would you outline your ideas for such a unified command?

General **MEYER**. We have needed a national level command for Special Operations Forces for a long time. A national level command would provide more feasible and appropriate options to the National Command Authority in crisis and pre-crisis situations. In order for this unified command to be responsive to the NCA in a timely manner, and to provide unfiltered guidance to the operational commander, the headquarters should be located so as to permit liaison with the many Federal agencies whose cooperation and support are necessary. It should be multi-service and a supporting organization to those regional unified commands already in existance. We are actively examining these issues right now.

Senator **THURMOND**. General Meyer, in light of the administration's increased emphasis on Special Operations Forces, what real growth will be reflected in 1st Special Operations Command's operating budget in the current five year defense plan?

General **MEYER**. The programed increase in operation and maintenance, Army (OMA) included in the current five year defense plan is $6.818 million for fiscal year 1984 with no additional growth currently programed. However, we are continuing to develop the overall improvement program and expect to show some additional growth in the fiscal year 1985–89 program.

QUESTIONS SUBMITTED BY SENATOR JOHN W. WARNER

MANPOWER REQUEST

Senator **WARNER**. What are the active, reserve and civilian manpower requests for fiscal year 1983 and fiscal year 1984, and what are the projected figures for those categories for fiscal years 1985–88?

Secretary **MARSH**. The active, selected reserve, and civilian manpower requests contained in the Five Year Defense Plan (FYDP) in support of the fiscal year 1984 President's Budget are:

[End strength in thousands]

	Fiscal year—					
	1983	1984	1985	1986	1987	1988
Active	780.0	782.6	791.0	799.4	807.4	814.4
Selected Reserve	685.6	694.0	717.7	735.3	749.2	764.2
Civilian	392.8	400.0	400.1	404.6	405.2	405.3

Most of this information is in the fiscal year 1984 Manpower Requirements Report provided to Congress on 15 February 1983.

I have previously been reluctant to release manpower figures beyond the budget year. This is primarily because these data reflect internal planning assumptions which undergo substantial and numerous changes before appearing in the budget request.

During my testimony to the HAC on 16 February 1983, I agreed that the Army will have to remain approximately level for the next 4 or 5 years. Any substantial military manpower increases will have to result in additional reliance on the reserves. The Army is reexamining the manpower program for fiscal year 1985 and out at this time. The new manpower program will be reviewed by the Secretary of Defense this summer, and the fiscal year 1986 columns of this program will be presented to the Congress with the fiscal year 1985 President's budget.

MANPOWER REQUIREMENTS

Senator **Warner**. What would be the quantitative reduction in manpower requirements and in deployability or, as is the case for deployed units, combat effectiveness, permitted by a reduction in the readiness goals (C-ratings or ALO-s) for a representative group of units?

Secretary **Marsh**. A reduction in readiness goals by 10 percent (e.g., Authorized Level of Organization (ALO) 2 to Authorized Level of Organization (ALO) 3 could result in a 16,000 manpower savings when applied to Continental United States (CONUS) units. We would maintain our forward deployed divisions (Europe and Korea) at programed levels of authorization; the 82d and 101st Divisions at ALO 1 and the 24th Division along with the training base at programed strength.

These reductions would decrease the Army's warfighting capability thus our global credibility; recreate the hollowness in required versus authorized strength; degrade the CONUS Force Modernization-Division 86 implementation; and expand the deployment preparation times of all units. This 16,000 end strength cut would have serious consequences in personnel readiness in that all CONUS-based, non-Rapid Deployment Force, divisions would be at Readiness Condition 4, not mission capable. Since the personnel reduction would be made in CONUS, personnel turbulence created would be extreme in all units. The overseas to CONUS skill and grade ratio would be in a severe imbalance situation causing tours of duty length in CONUS to be much less than desirable. This would impact severely on the morale of our soldiers, especially the middle manager officer and non-commissioned officer.

Senator **Warner**. What would be the reduction in active manpower requirements and force deployability of a representative transfer of missions (i.e., force structure) from the planned active force to the Reserve and Guard? Show how many active personnel reductions would be made possible by the active structure reductions (both combat and support) and how many personnel (if any) would be added back in for the reserve units. Also, show the changes in other manpower requirements (e.g., part-time reservists and full-time technicians).

Secretary **Marsh**. The Army must make a balanced reduction in any transfer of missions from the active to the reserve components. A 5 percent balanced reduction of the active force would be achieved by inactivating a division and associated units in Europe (17,600 spaces); inactivating support units and decreasing General Support Forces (FSF) manning levels in Continental United States (CONUS) (16,400 spaces); and a 5,000 space reduction in the individuals account.

A balanced reduction is necessary to provide a sustaining base to support training and sufficient time on station in CONUS for individual soldiers between overseas tours. The Department of Defense (DOD) goal is 36 months between Department of Defense overseas tours; whereas, the Army is currently struggling to achieve 24 months in some skills. A cut in CONUS only forces would exacerbate this situation.

The Reserve Components (RC) strength would increase approximately 34,000. This would result in the activation of a new RC division (17,600), the activation of new non-divisional combat and tactical support units (7,600) and the filling of existing RC unit manning levels (8,800). Until the specific active unit reduction and corresponding transfers to the Reserve Components are determined, the magnitude of changes in full-time manning and part-time reservist requirements cannot be determined. However, those requirements would increase.

The transfer of missions from the Active Component (AC) to the Reserve Components (RC) would reduce the AC capability immediately and require a four-year period before the RC could completely offset the reduction. Warfighting capability would be reduced with the replacement of rapidly deployable AC units with RC units not capable of rapid deployment. A requirement for additional strategic airlift (which is already inadequate) would be created.

The reduction of forces in NATO would be viewed by our Allies as violating our NATO commitment thus reducing our global credibility and could result in weakening all alliances.

REDUCTION IN END STRENGTH

Senator **Warner**. What would be the impact on military capability of a representative combination of the alternative approaches previously cited that would produce an active manpower reduction of 5 percent of the proposed end strength for fiscal year 1984? What would be the effect of such a reduction on Reserve, technician, and civilian strength requirements?

Secretary **Marsh**. A 5 percent Active Component reduction, whether by unit inactivations, ALO reductions, or both, will reduce Army readiness and mission capability. Assumption of the lost AC structure or ALO by the Reserve Components will not fully restore the lost capability due to the inherent limitations of RC units. Further, there would be a gap of some 4 years until new RC units were mission capable. To maintain a stable rotation base, a major part of the AC reduction would have to come from forward deployed forces. This would jeopardize our NATO commitment and put additional demands on our already over committed strategic lift. An additional POMCUS set would be required. The Army civilian strength requirements associated with such a transfer could not be accurately determined until detailed AC reductions and RC increases are finalized. Any civilian reductions caused by AC cuts would be at least partially offset by civilian requirements to support RC increases and by the approximately 900 civilians required at a new POMCUS site. Approximately 1,000 additional RC technicians would be required.

Senator **Warner**. What would be the net savings in fiscal year 1984 outlays of the examples just cited?

Secretary **Marsh**. There would be no outlay saving to the Army in fiscal year 1984. Outlays would increase in fiscal year 1984 due to new costs. Savings, from an active component reduction, are offset initially by increased cost to the reserve components for required equipment and facilities, which cannot be transferred directly from the Active Component because of POMCUS requirements and facilities location. If implemented, savings would not materialize before fiscal year 1989.

Senator **Warner**. What actions would the Army take in fiscal year 1983 if the fiscal year 1984 manpower request were reduced by 5 percent?

Secretary **Marsh**. A 5 percent reduction in the military manpower request in fiscal year 1984 would reduce the fiscal year 1984 Army manpower strength by approximately 39,000 spaces from 782,600 to 743,600. Current fiscal year 1983 end strength is 780,000. A requirement to reduce the fiscal year 1984 strength would create such a large change between currently approved fiscal year 1983 levels and requested fiscal year 1984 programs that the Army would have to undertake drastic and immediate force manning actions to begin to ramp down to the resulting end fiscal year 1984 level. Of course, a critical factor in fiscal year 1983 planning for such a significant reduction is whether the reduction would remain—to some degree—over future years in order to better determine the precise structure and manpower or programs that must be reduced.

Some of the considerations the Army must deal with would include force structure reductions, reduction in force (RIF) of both military and civilians, OCONUS rotation base considerations, recruiting and retention policies, programing the training base, organizing an adequate support base, procurement and contract commitments, logistical resupply programs, and base closures just to name a few.

The dollar savings one would anticipate saving if the Army began to ramp down in fiscal year 1983 to the new fiscal year 1984 strength level would not be realized because of increased costs to redistribute equipment, reassign personnel, conduct RIF actions and generally attempt to rebalance the Army force structure in terms of reassessed capabilities.

Because of the serious impact of a reduction of Army end strength which would drastically change the Army's combat capability through either fewer combat units or reduced combat support capability or both—such a reduction should not be implemented. For example, a reduction of 39,000 spaces would equate to approximately one division and its total force support slice. Or it could represent two divisions without considering associated support. The turbulence and hardships placed on soldiers and their families alone would damage severely the Army's long-term ability to recruit and retain quality career soldiers. Also, our global capability and credibility to support commitments, made to Allies and friends would be eroded.

IMPACT OF A REDUCTION

Senator **Warner**. What would you expect the impact to be on the following areas of a combination reduction previously described?

a. Base structure.

b. Enlisted and officer personnel management and morale.

c. Rotation base.

d. Force readiness, both near-term and far-term.

e. Ability to meet national commitments, especially the D-day commitment to NATO.

f. Political-military perceptions among allies and potential adversaries.

Secretary **Marsh**. In a balanced reduction, cuts would be made in Europe (combat units), CONUS (general support forces), and the individuals accounts. The areas/programs within the Army's Base Structure that will be affected are Facilities, the Training Base, and the Material/Log Base.

In the Facilities program, strength reductions reduce but do not eliminate the current shortfalls in facilities for both Europe and CONUS. Accordingly, there will be no facilities vacated in Europe nor will there be any reductions in the Army's MILCON program. New POMCUS construction for two sites to support three combat brigades will be required. The estimated cost of this construction is $38M, however, with NATO infrastructure funding the U.S. share would be reduced to $10.4M. In CONUS, strength reductions may force the consideration of base closures.

The demand on the training base associated with the manning shift from Active Component (AC) to Reserve Components (RC) will vary by fiscal year. AC manning reduction in fiscal year 1984 will free approximately 15K programed training seats. RC manning increases are programmed over fiscal year 1984 and fiscal year 1985. The training base can absorb the RC fiscal year 1984 training seat demand using freed AC training seats. The MOS mix is currently undetermined; therefore the training base may be slightly underutilized/overutilized in some skill producing courses. No significant drawdown is anticipated in face of the fiscal year 1985 increased training requirements. The training base must be expanded to meet the fiscal year 1985 increase in RC requirements for Initial Entry Training (IET) and Officer Basic Course (OBC) training seats as there will be no corresponding AC reduction in training load requirements.

The impact on the material/log base will be POMCUS associated costs primarily in maintenance, supply and transportation. Similar costs will be incurred in CONUS in the transfer of equipment from the AC to the RC. In CONUS, the impact on the material base would be minimal as the reduction in support to the AC would be offset by the increase in support to the RC.

ENLISTED AND OFFICER PERSONNEL MANAGEMENT AND MORALE

We would attain an end strength reduction through a combination of reduced accessions and a reduction in force. The latter would be necessary in order to spread the impact of the reduction over the next 5 years. If, for instance, we took the reduction entirely from accessions, we would cause a severe shortage in non-commissioned officers 5 years from now. The reduction in force would likely be seen as breaking the trust and confidence of our career soldiers. It will be necessary to reclassify and move soldiers in order to realign after the structure changes and reduction in force. These actions will cause turbulence and instability for soldiers and also slow promotions. The cumulative effect of such a reduction would be lower morale and retention.

ROTATION BASE

The Army currently has 43 percent of the total Active Force deployed overseas. Because of this, the Army is unable to meet its goal of 36 months in CONUS between overseas tours for many of the enlisted specialties and is accomplishing with difficulty 24 months between overseas assignments for non-commissioned officers in 129 of 354 skills. To the extent reductions take soldiers out of CONUS without parallel reductions in the same skills overseas, time in CONUS between overseas assignments will decline below present levels. The shorter turnaround times between overseas assignments would make the Army less attractive as a career.

FORCE READINESS

The impact on near term Army readiness of a reduction in Active Army end strength would be apparent in several facets of ground forces capability. First, for the reasons that General Meyer and I have given, the reduction in the Active Component (AC) would have to be balanced between the forces forward deployed and those in CONUS. The Army combat strength forward deployed in support of the U.S. commitment to NATO would thus be lessened. In order to preserve to the extent possible the U.S. capability to reinforce NATO, the equipment from inactivated units based in Europe would be added to POMCUS stocks. Units in CONUS, either Active or Reserve, would be designated to deploy to the new POMCUS. The net effect is a near term degradation in the U.S. capability to reinforce NATO, because we would be increasing the demand on an already inadequate strategic lift.

There is also a near term degradation in the overall war-fighting capability of the Army. The degradation occurs even were we to exactly mirror the AC inactivations in new Reserve Component (RC) activations. The capability represented by the inactivated AC units is lost immediately upon inactivation, whereas our best estimate of the time required to plan for, recruit, train and equip the newly activated RC units is about 4 years. So, there is up to a 4-year capability gap built in to the proposal of replacing AC with RC. There is also a permanent degradation which I will address later.

We would also expect structure changes of this magnitude to strain the Army personnel management system. The result would be severe skill and grade imbalances within and between theaters. The short term effect would be to reverse the gains in personnel stability made in recent years. We would anticipate the lower morale and increased dissatisfaction with Army life to lead to lower retention rates than we have enjoyed for the past 2 years.

The Army would eventually accommodate itself to the new situation and recoup some of the near term readiness losses, but others are permanent. There are also some far-term adverse readiness impacts not yet covered.

The reduction in capability that is forward deployed is permanent for as long as the end strength reduction persists. The same is true of the increased POMCUS requirement and, to the extent that strategic lift is not increased to compensate, of the degraded reinforcement capability.

We must also recognize that, overall, RC units take longer to deploy than do their AC counterparts. It is possible for some RC units to deploy rapidly. Such units must maintain a high state or readiness and must be located to eliminate travel to and processing through a mobilization station. On the average, however, we must plan on mobilizing the RC and providing time for post mobilization training prior to deployment.

Finally, I must mention two factors not directly related to readiness but nonetheless inseparable from the question. First, a reduction in Active end strength, particularly one that includes decreases in the authorized fill of units, would pose a serious challenge to the viability of the all volunteer force. The most visible effect would be the inevitable distrust and loss of confidence caused by the reduction-in-force separations necessary to effect a reduction in end strength. Another problem is the frustration which affects good soldiers trying to do a difficult job well in undermanned units. The Army had plenty of first hand experience with that situation in the late seventies. Second, as I have mentioned before, the reduction in Active end strength with concomitant increase in RC strength simply would not produce the savings expected in fiscal year 1984 and could actually increase costs in future years.

ABILITY TO MEET NATIONAL COMMITMENTS

A five percent reduction of the active force structure (elimination of a Europe division plus CONUS combat and support forces totaling 39,000 force structure spaces) would reduce our global capability and credibility as well as endanger our 10 division D-day commitment to NATO.

Globally, reduction in our CONUS forces would degrade non-divisional support forces for employment in SWAsia, resulting in reduced capability, hence reduced deterrence. Similarly, the CONUS reduction would affect those forces planned for reinforcement of Korea, which would bring into question our commitment to a free and independent South Korea.

In NATO, loss of a forward deployed division would call in question our commitment to NATO of ten divisions by D-day. To replace that division would require movement of a CONUS unit; our strategic deployment capability (air and sea) is already woefully inadequate. This new requirement would add approximately 1300 C141 and 300 C5 air sorties or 16 C-9 ship equivalents. Default of our 10 division commitment would jeopardize our ongoing Host Nation Support and Master Restationing Plan negotiations. Most importantly, NATO's conventional capabilities would be seriously affected, lowering the nuclear threshold and weakening the Alliance deterrent posture.

POLITICAL-MILITARY PERCEPTIONS

A five percent reduction of the active Army force would have a detrimental impact on the political-military perceptions of our allies and potential adversaries (This assumes the elimination of 39,000 spaces from the active force structure one Europe division along with combat and support forces based in the continental United States.)

To both our allies and potential adversaries such a reduction would indicate a weakening of the U.S. commitment to maintain its active land forces, and, because of the vital role these forces play in defense of the West, a weakening of the U.S. commitment to the collective defense. Further, it would generate justifiable charges of hypocrisy from our Allies because the U.S. has continuously charged that our Allies have failed to do their fair share for the collective defense.

The most severe impact would fall on our relationship with our NATO allies with whom our vital interests are tied. The elimination of one of our four divisions in Europe would seriously undermine the allies' confidence in the United States. This is an exceptionally critical period for the Alliance because of the incipient deployment of intermediate-range nuclear forces into five NATO countries.

A reduction of this magnitude during this critical period would clearly signal a lessening of the U.S. commitment to NATO, create an impression of unreliability, undermine U.S. leadership in the Alliance, and, rather than causing our allies to put more resources into defense—as some believe—might cause them to place more emphasis on detente with the Soviet Union.

For its part, the Soviet Union would exploit such a reduction by seeking to drive as deeply as possible the wedge between the U.S. and its allies caused by such a move. It would surely embolden the Soviet Union to engage in political coercion of the allies as well as stiffen their negotiating positions in virtually all the major negotiations in which we are engaged with them. (Strategic Arms Reduction Talks, Intermediate-Range Nuclear Forces Talks, Mutual and Balanced Force Reduction Talks, and the Conference on Security and Cooperation in Europe.)

IMPACT OF A REDUCTION

Senator **WARNER**. Assuming a reduction in active duty end strength of 25,000, which includes substitution of one ARNG "roundout" brigade for each of two additional CONUS divisions, with CONUS manning levels bearing the remaining reduction, what would be the net savings in fiscal year 1984? The loss in readiness? The impact on morale and officer personnel management?

Secretary **MARSH**. If required to reduce active end strength, the Army does not recommend taking the entire reduction from CONUS units as proposed in this question. Such a reduction would create an unacceptable imbalance in the rotation base. Reductions must come proportionately from CONUS and forward deployed forces. The remainder of this answer must be considered from this perspective.

Based on the parameters of the question, total cost would increase in fiscal year 1984 by approximately $92 million ($43M for pay and allowances and $49M for operation and support).

Readiness impacts are threefold. First, the AC to RC Brigade exchange reduces total capability by replacing AC brigades with inherently less ready RC units. Second, the AC to RC brigade exchange creates a 4 year capability gap until the new RC units achieve a combat ready status. Third, the 16K AC authorization reduction would create hollowness and reduced capability in affected units. This loss would not be compensated by the ALO increases in the RC.

Concerning enlisted and officer personnel management and morale, we would attain a 25,000 end strength reduction through a combination of reduced accessions and a reduction in force. The latter would be necessary in order to spread the impact of the reduction over the next 5 years. If, for instance, we took the reduction entirely from accessions, we would cause a severe shortage in non-commissioned officers 5 years from now. The reduction in force would likely be seen as breaking the trust and confidence of our career soldiers. It will be necessary to reclassify and move soldiers in order to realign after the structure change and reduction in force. These actions will cause turbulence, instability and slow promotions. Finally, the CONUS only reduction would create unacceptable imbalance in the rotation base. The cumulative effect of such a reduction would be lower morale and retention.

The reduction proposed in this question would not save money in fiscal year 1984 and would be unacceptable to the Army in terms of lost capability and imbalance in the CONUS—forward deployed ratio.

QUESTIONS SUBMITTED BY SENATOR DAN QUAYLE

PAY FREEZE

Senator **QUAYLE**. General Meyer, you emphasized a concern about people programs. Much emphasis has focused on the proposed pay freeze for fiscal year 1984. In addition to any problems caused by such a freeze, what would be the impact on the Army if the current legislation to limit retirees under age 62 to one-half the CPI increases over the next 3 years were made permanent? Would a "catch-up" at age 62 significantly reduce the adverse impact?

General **MEYER**. The most recent "Soldiers Report: Aug 81–Feb 82" identifies the military retirement system as the primary consideration among careerists for staying in the Army. Consequently, the proposal to institutionalize the one-half cost of living adjustment for retirees under age 62 is expected to have an impact on force management. The catch-up at age 62 will reduce the monetary effect; however, until a detailed study of the proposal and its force manning impact is completed, its consequence cannot be predicted. I believe soldiers would have serious reservations as to whether they can put faith in a catch-up at age 62. We could expect to suffer some credibility problems because some soldiers will see changes to the military retirement system as a "breach of contract" causing them to doubt our trustworthiness.

PERSHING II MISSILE

Senator **QUAYLE**. General Meyer, with regard to the Pershing II missile, would you describe each of the test flights that have been conducted, the problems in the early test flights, and whether those problems have been solved?

General **MEYER**. The first test flight was conducted on 22 July 1982 at Cape Canaveral. The missile failed and was destroyed 17 seconds after launch due to a leak in the first stage rocket motor. This problem proved to be a manufacturing quality control problem rather than a design fault and has been corrected. The fix has been successfully demonstrated on three subsequent flights.

The second test was conducted at White Sands Missile Range on 19 November 1982. This test successfully proved the fixes to the rocket motor problem encountered during the first test but surfaced problems with the reentry vehicle electrical and hydraulic systems. These problems did not allow the reentry vehicle to maneuver, as planned, during the terminal phase of the trajectory. These problems have also been solved and their solutions proven in the last two flight tests.

The third test, fired on 21 January 1983, and the fourth test, fired on 9 February 1983, were totally successful. These flights demonstrated the long range capabilities of the missile and proved out the fixes to our previous problems. There were no design or manufacturing changes required as a result of these two tests.

The next test is scheduled for tomorrow at White Sands. This test, which will be a single-stage missile flight, is designed to test system accuracy against a land target. If this test is successful, I think that we will be able to say that the design is sound and that we feel confident that the missile can perform satisfactorily over its entire flight envelope.

SINCGARS–V RADIO

Senator **QUAYLE**. General Meyer, in your testimony you mentioned the importance to the troops in the field of an improved tactical radio. In that regard, what is the importance of the SINCGARS–V radio to the future tactical communications requirements of the Army?

General **MEYER**. The Single Channel Ground and Airborne Radio System (SINCGARS) is the next generation of frequency modulated (FM) combat net radios. It incorporates state-of-the-art technology and replaces the 20 year old AN/VRC–12 and AN/PRC–77 family of radios. SINCGARS–V provides 2320 channels in the very high frequency spectrum versus the 920 channels provided by the current equipment. In addition, the radios are considerably lighter and smaller, and provide improved reliability, availability, and maintainability. SINCGARS–V provides an electronic counter-countermeasure (ECCM), anti-jamming capability (through frequency hopping) that we do not have with the current equipment. In addition to voice, SINCGARS–V also provides a data transmission capability. Both capabilities operate in the secure or non-secure mode. It interoperates with the current family of tactical radios and the NATO tactical FM radios in the non-hopping mode.

STRATEGIC MOBILITY

Senator **Quayle**. Mr. Secretary, you emphasized the importance of both airlift and sealift to the Army. How does the decline in the U.S. merchant fleet affect the ability of the Army to meet its world-wide deployment requirements? How does the U.S merchant fleet fit in with your "strategic mobility capability?"

Secretary **Marsh**. The U.S. merchant fleet plays a vital role in the deployment of forces. The need is for Roll-On Roll-Off (RORO) ships, conventional cargo ships, and some containerships. The decline in the merchant fleet is seriously affecting deployability. Two areas are significant; the reduction in the actual number of ships and the trend toward containerization. More ships are needed in order to deploy forces in the timeframes required and to sustain them once they are in place. The trend toward containerization also has some serious disadvantages since much of the Army's unit equipment is not containerizable. Navy programs offer some relief (flatracks and seasheds) but more breakbulk ships are needed.

C-17

Senator **Quayle**. General Meyer, I have seen General Richardson's memorandum to you regarding a long-term airlift acquisition program. What are your views on this issue and specifically on the C-17?

General **Meyer**. The memorandum in question was a brief item on page three of the February 14th issue of Defense Week headlined "Army Operations Chief Say's He's Tired of USAF's C-17."

Although brief, the article was extremely damaging because it distorted the reality of the Army and Air Force cooperation in seeking a solution to the complex strategic mobility problem both now and into the next century.

General Richardson most certainly did not suggest that the C-17 would not meet Army requirements. He fully supports development and acquisition of the C-17.

I believe the C-17 is a very important part of the strategic mobility program for the future, and have so testified before several congressional committees.

Questions Submitted by Senator Henry M. Jackson

STRATEGY FORCE MISMATCH

Senator **Jackson**. General Meyer, what specifically do you mean when you talk on page 6 of "The strategy-force mismatch inherent in America's global posture?"

General **Meyer**. The JCS determine the force levels necessary to execute the national military strategy. To provide reasonable assurance of success in a global war with the Soviet Union, that force level, for the Army, is [deleted] fully structured, fully supported Army divisions. The current force, as depicted in the fiscal year 1984 budget, is 25 understructured (in terms of TOE and wartime requirements) and undersupported divisions. Thus, the current Army force is not sufficient to meet our global strategic requirements nor will we attain the capability by the end of the five-year program (FYDP) period.

RAPIDLY DEPLOYABLE LIGHT FORCES

Senator **Jackson**. General Meyer, would you please expand on the remarks you make on page 5 of your statement about the work the Army is doing with the 9th Division at Fort Lewis, Washington to create light forces with more combat power than today's light units while maintaining the ability for rapid deployment. What are the programs in the Army's fiscal year 1984 budget request that are particularly important to this effort?

General **Meyer**. Within the fiscal year 1984 budget there are several interrelated programs which when combined in the HTLD will improve combat power and the ability for rapid deployment. These are: Fast Attack Vehicle, Light Armored Vehicle (LAV-25), High Mobility Multi-Purpose Wheeled Vehicle (HMMWV), Squad Automatic Weapon (SAW), Grenade Launcher, Automatic, 40MM, MK-19-3, Mobile Heavy Mortar, Smart Mortar Munitions, Light Field Artillery Tactical Data System, Airborne Radar Jamming System, Multi Channel Electronic Counter Measures, Distributed, Command, Control, Communications, and Intelligence (DC ^{3}I) programs.

These systems are all important to the ability of the division to deploy rapidly and fight as a cohesive unit.

FUNDING WEAPONS SYSTEMS

Senator **Jackson**. General Meyer, in your view, is there sufficient funding in the 5-Year Defense Program to buy all the weapons systems included in that program?

General **Meyer**. Based upon costing information available at the time that the fiscal year 1984 budget and associated Five Year Defense program were finalized, there was sufficient planned funding in those budget and program documents to buy the weapons systems included in that Five Year Defense program (FYDP).

PERSHING II MISSILE

Senator **Jackson**. Mr. Secretary, I would like to address the Pershing II missile for a moment. Since its success and timely deployment are so critical to the President's position on the INF negotiations, as well as maintaining our credibility with our NATO allies, would you furnish the Committee with the Army's current test plan for the missile and identify the critical paths in that plan?

Secretary **Marsh**. The Pershing II system had already undergone extensive testing prior to the initiation of the flight test program. The results of testing conducted to date have been very good and we see nothing on the horizon that would lead us to believe any significant changes will have to be incorporated into production hardware prior to the Initial Operational Capability. The short and long range capabilities of the system have been demonstrated and we will soon demonstrate the system accuracy. The last two flight tests (both successful and without deficiencies) have significantly increased the confidence that the design is sound. The real critical path that we see at this time is establishing the system accuracy in the next test. Once we have done that, the testing that remains to be done is essentially confidence-building in nature.

The following is a summarization of the major test activities that have recently been completed and remain to be completed.

Flight testing.—Eighteen flight tests are planned during the Engineering Development program. To date, 4 flight tests have been conducted. The initial test in July 1982 failed shortly after launch; however, three successful tests (two with no deficiencies at all) have followed. The 18-missile flight test schedule is summarized as follows:

1982: July, 1 test—failure; August, none; September, none; October, none; November, 1 test—success; December, none.

1983: January, 1 test—success; February 2 tests—1 success to date; March, 2 tests; April, 2 tests; May, 3 tests; June, 4 tests; July, 1 test; August, 1 test.

The Army has structured the flight test plan to demonstrate the system's ability to perform over its entire flight envelope before the end of March 1983. The next test firing scheduled for 26 February 1983 from White Sands Missile Range will demonstrate system accuracy and validate the accuracy of data collected in Captive Testing.

Qualification testing.—91 of 97 items have completed qualification testing with good results. Qualification testing of the remaining items should be completed by mid-1983.

Environmental testing.—Temperature extreme (high and low) testing has been completed. Environmental testing is continuing. No problems are anticipated.

Captive testing.—Extensive captive testing has been performed using fixed-wing aircraft to test the Radar Correlator used for terminal guidance of the Pershing II missile. These tests simulate actual missile performance except for terminal velocity. Results of captive flight tests strongly demonstrate that the correlator does work and that system accuracy requirements will be met with the required degree of assurance.

Operational assessment.—A Pershing II operational assessment was successfully completed in July-August 1982. The purpose was to provide early user participation to assure there were no production "show-stoppers" which potentially would not have been known until Operational Testing III (March-April 1983).

Operational test III.—The 3/9th Field Artillery has formally receipted for Pershing II equipment at Fort Sill, Oklahoma and has began unit collective training. A training field exercise will begin on 2 March 1983, after which the schedule of graded operational exercises will be finalized. Current plans are for actual graded testing to begin approximately 21 March and be completed by mid-May 1983.

MILITARY PAY RAISE

Senator **Jackson**. General Meyer, a complete freeze on military pay in fiscal year 1984 as the President has proposed would mark the first year in over 20 years that there has not been at least some annual increase in military pay. Of all the services, the Army faces the most serious recruiting challenge. Should Congress make room in the fiscal year 1984 budget for at least some military pay raise?

General **Meyer**. A pay freeze may be expected to result in a 5-8 percent decrease in high quality careerist reenlistments. With youth unemployment running as high as it is, we are not faced with as serious a challenge in recruiting as in retention; however, that should not be taken to mean that we do not have a recruiting challenge. I personally believe that a pay increase is needed. Experience has shown us that higher mental category personnel are the first to leave and the least likely to come in when military pay lags behind private wage growth.

Senator **Jackson**. General Meyer, if Congress enacts a pay raise in fiscal year 1984, what form should it take? Should it be across-the-board or targeted? Should it go into effect on October 1, 1983, or on April 1, 1984?

General **Meyer**. In my opinion, it should be targeted. The pay adjustment should be targeted at critical career decision points. The bill should go into effect on 1 October 1983. I do not consider delaying a capped pay increase (all the discussion has involved a four percent increase rather than a full comparability increase) for 6 months to be the wisest choice.

MILITARY RETIREMENT PROPOSALS

Senator **Jackson**. General Meyer, as you know the President has proposed in his budget for fiscal year 1984 making permanent the current limitation on cost-of-living adjustments for non-disability Federal retirees. In other words, military retirees under age 62 would continue to receive only one half of the full cost-of-living increase after 1983. Do you think this proposal, if enacted, would have any impact on retention in the career force? What would your senior sergeants think about that?

General **Meyer**. Yes, I expect any changes in the military retirement system to have an impact. The changes are certain to be seen by some as a "breach of contract" with the Government making unilateral changes. Therefore, the Army may be perceived as an "unreliable employer." Careerists nearing retirement or those with too much committed service to leave might lose some enthusiasm which will be ultimately reflected in the attitude of more junior servicemembers. Some mid-career servicemembers who might have remained in the force will refuse to remain in such an unreliable work environment (note that the military retirement system is the primary consideration among careerists for remaining in the service.)

Questions Submitted by Senator John C. Stennis

PERSHING II

Senator **Stennis**. Mr. Secretary, the Pershing II missile experienced early test problems. However, I am informed that recent tests have been successful. Would you provide your opinion on the status of this program? Do you believe we should initiate production of this missile prior to completion of further testing?

Secretary **Marsh**. The Pershing II Engineering Development program is only 7 months from scheduled completion and is progressing well. The Army is on schedule to meet the December 1983 initial operational capability. We believe that corrective actions implemented to remedy problems surfaced in the first two missile test flights have been successful as demonstrated in subsequent flight tests.

The first test failure was a process/quality control problem and the fix has been demonstrated successfully in the last three tests. A reaction and hydraulic control system problem on the second flight test, that prevented reentry vehicle maneuvers, has been corrected and the maneuver capability demonstrated successfully in the last two flights. The last two flights have significantly increased our confidence that the design is sound. We are not seeing any significant changes that must be incorporated into production hardware before the initial operational capability. We may yet find some minor problems with the hardware but I don't believe we will encounter any significant problems.

Pershing II production contracts for fiscal years 1982 and 1983 have been awarded and the first missile delivery is scheduled for April. In order to meet the December 1983 Initial Operational Capability, development/production concurrency is necessary. However, such concurrency is not new to Pershing as the Pershing Ia program employed concurrency and was highly successful. It is also noteworthy that this concurrency will save the taxpayer approximately $200 million.

Some of the specific actions/activities employed by the Army to minimize the risk of concurrency are as follows:

Early component testing.—The development program was structured to provide for testing of major system components early in the program and to find and correct problems that existed as early as possible to prevent costly changes during production and preclude possible adverse impact upon the Initial Operational Capability.

1st missile flight test.—The first missile test firing was planned well in advance (18 months) of the initial operational capability. This early testing provides the means of determining as early as possible if problems exist so that corrective action can be initiated in sufficient time to preclude having to make corrective changes to production hardware.

Operational assessment.—A Pershing II operational assessment was successfully completed in July-August 1982. The purpose was to provide early user participation to assure there were no production "show-stoppers", which potentially would not be known until Operational Test III (March-April 1983).

Low initial rate production.—To lower the risk associated with concurrency, the initial production rate will remain low until the engineering development program is completed. This allows the early deployment of Pershing II, while reducing the cost exposure associated with initiating production prior to completion of engineering development.

I am confident that the acquisition strategy developed for Pershing II is sound and the path we have been following will be proven correct. The Pershing II acquisition strategy was carefully planned to minimize the risk associated with entering production prior to completion of development.

ARMY BUDGET

Senator STENNIS. Secretary Marsh, on page 6 of your statement you say, "In compliance with administration guidance, we have reduced our programs to a level which we consider barely acceptable." What specific programs were reduced and by how much?

Secretary MARSH. The following fiscal year 1984 Army programs were reduced in response to overall Federal fiscal constraints:

Item	Appropriation	Amount (million)
Ballistic Missile Defense	RDTE,A	$280.0
Domestic Construction	MCA	38.0
Travel	OMA	5.0
Selective Reenlistment Bonuses	MPA	8.2
Rattler	RDTE,A	28.0
TOW 2 on Bradley	RDTE,A	35.2
TOW 2 on Bradley	WTCV,A	33.6
AVLB Chassis & Launcher	WTCV,A	44.0
Semi Trailer, Tank 500G	OPA	10.0
Radio, Repeater, AN/TRC-174	OPA	10.0
Dragon Night Sight	OPA	10.0
140 Ton Crane	OPA	13.0
Total		515.0

FORCE STRUCTURE CHANGES

Senator STENNIS. Mr. Secretary, what are the changes in force structure for the Army in the fiscal year 1984 budget request compared to 1983 levels?

Secretary MARSH. The overall active Army end strength between fiscal year 1983 and fiscal year 1984 increases by approximately 2,600 spaces from 780,000 to 782,600 Reserve Component end strength increases from 685,600 to 694,000.

Significant Active Component changes between fiscal year 1983 and fiscal year 1984 include plans to reorganize units under the Division 86 design; continue replacement of our Nike-Hercules air defense structure with the Patriot system; increase Special Operations Forces capability; improve our combat support and combat service support sustaining structure; inactivation of the 4th Brigade, 4th Mechanized Infantry and transfer selected missions and resources from the Active Component to the Reserve Components. The Reserve Component increases of about

8,400 from the fiscal year 1983 level will result in the formation of an additional Mechanized Division through consolidation of three Separate Brigades, realignment of 10 maneuver battalions to Division 86 design and enhancement of medical, air defense and chemical capabilities.

Senator Stennis. Mr. Secretary, how do the readiness indicators (i.e., flying hours, depot maintenance backlogs, funding for real property maintenance, peacetime operating spares, funding for force modernization, etc.) for the Army in the fiscal year 1984 budget request compare to 1983 levels and requirements?

Secretary Marsh. The following table reflects the information requested:

READINESS INDICATORS [1]

[In millions of dollars]

	Fiscal year 1983		Fiscal year 1984	
	Requirements	Budgeted	Requirements	Budgeted
Flying hours	[2] 338.4	338.4	[2] 354.0	354.0
Depot maintenance hardware	1,411.8	1,318.8	1,629.6	1,426.6
Real property maintenance [3]	[4] 1,555.2	1,294.9	[4] 2.155.4	1,563.9
Force mod	1,383.6	1,296.6	1,962.0	1,712.0
Peacetime operating spares (secondary items)	1,579.0	1,391.0	1,887.0	1,836.0

[1] Includes Active Components, Reserves, and Guard O&M.

[2] Spare parts availability constrain the fiscal year 1983 and fiscal year 1984 flying hour program to the above listed levels. The constrained requirements provide the minimum support levels for pilot training, combat readiness and flying safety for the force.

[3] Does not include utilities and engineering services.

[4] Requirements are limited to those backlog projects which are executable.

I must add that the above factors are not the only indicators of readiness or military capability. This issue is more fully explored in the DOD Force Readiness Report for fiscal year 1984 which the Department of Defense submitted to the Congress in February.

M1 TANK

Senator Stennis. General Meyer, I would like your opinion concerning the reduction in procurement of M1 tanks. The budget reflects a request for 720 tanks—a reduction of 135 tanks below the 855 funded in fiscal year 1983. What will the proposed production rate do to the unit cost of the M1?

General Meyer. The reduction to 720 tanks in fiscal year 1984 was solely due to short term affordability. The M1 tank is still the Army's first priority, but the constrained total obligation authority (TOA) required that production be held to 720 tanks per year. Other program cutbacks also occurred so that a balanced force could be maintained.

The result of the program stretch-out when using the December 1981 and December 1982 System Acquisition Reports as milestones is an increase of 113 thousand dollars per tank. This considers the entire M1 fleet of 7,058 tanks.

Senator Stennis. General Meyer, tell me your opinion of the M1. Is it or is it not the tank we have been trying to build for the last 20 years? Are you satisfied with the operational capability of this tank and with the ability of the troops to maintain it?

General Meyer. The M1 is without question the tank the Army wants. It is certainly one of the best, and in my opinion the most survivable tank in the field today.

During the last REFORGER exercises in Europe the commanders and soldiers who either used or opposed the M1 were full of praise for the Abrams tank.

Statistics kept during the exercise showed that the M1 achieved an operational readiness rate of 97 percent. Rates this high are difficult to achieve for mature systems and demonstrate that the M1 can be maintained by soldiers in the field. During the 11-day exercise 174 M1s (three battalions) participated. None were nonoperational for more than 24 hours.

NATIONAL GUARD AND RESERVE

Senator Stennis. General Meyer, your statement refers to the effective integration of the Army National Guard and the Army Reserve into true partnership with the active component. You also speak of the problem where we have soldiers without equipment. Yet, the President's budget once again fails to request funds for the dedicated Guard and Reserve equipment appropriation. Congress has appropriated funds dedicated specifically for the Reserve Forces the last 2 years. And I am talking about unit equipment—the necessary items for the soldiers to exist, perform their assigned mission, and communicate with each other.

Why is it so hard to continue the support dedicated strictly to the Reserve Forces? They do a magnificent job and the relatively small amount of procurement funds dedicated to them are used in those areas where it helps the most. I would appreciate your comments.

General **Meyer**. I agree that the Reserve Forces do a magnificent job. They are integral components of the Total Army. We believe that it is more efficient to procure equipment for the Reserve Components within the framework of the Army's equipping process. The Army procurement and equipment distributions policies currently support Army missions and the total Army's force structure. Equipment distribution priorities throughout the Army's force structure are determined by the deployment sequence of our forces. The prioritization process provides equipment first to our forward deployed forces and then to the rest of the force in the order in which they will be deployed to combat. Consequently, early deploying Guard and Reserve units receive equipment before later deploying active units.

The problem of correcting equipment shortages with limited resources can best be addressed in terms of the total force equipment requirement rather than by the segregation of active and reserve accounts. We need to manage procurement and distribution of equipment in such a way as to insure both the greatest force capabilities and the most economic buys. Establishing of separate procurement accounts, while insuring delivery of dedicated equipment to "target" activities, will not necessarily insure that RC requirements are better supported and may actually result in lower active and Reserve Component capabilities in combat operations. It is for this reason that the Army did not include separate reserve appropriations in the fiscal year 1984 budget request. We believe that we can provide better support for the Reserve Components with the current procedures. To display what will actually be going to the Guard and Reserve from the fiscal year 1984 Budget, we have developed a system that identifies items and where they are projected to be distributed. This information will be available after 15 March 1983. We have identified approximately $900 million of equipment from the fiscal year 1984 budget to be distributed to the Reserve Components.

Senator **Stennis**. General Meyer, I am very concerned about whether the Guard and Reserves are getting their fair share of the Army procurement budget. This would include the end items like tanks, aircraft, and missiles. Would you provide for the record a chart which reflects the procurement amounts appropriated for the Guard and Reserves in fiscal years 1982, 1983 and the estimate for fiscal year 1984?

General **Meyer**. The Army procures and addresses the equipment needs of the Reserve Components within the framework of the total Army. The Army has developed an information system that displays the quantity and dollars of new procurement items that are projected to be delivered to the Reserve Components. A current projection of this information should be available after 15 March 1983.

MILITARY SUPERIORITY

Senator **Stennis**. General Meyer, during hearings before the Senate Armed Services Committee last year on the fiscal year 1983 Defense Authorization bill, I asked both the Air Force Chief of Staff and the Chief of Naval Operations questions regarding U.S. military power. There was no doubt in the minds of these top military leaders that they would not for one instant trade U.S. military forces today for those of the Russians—or anybody else.

There was no doubt in the mind of our Air Force Chief of Staff when he said, May 19, 1982, "I have been associated with the air forces of other nations; there is none better, believe me, than the U.S. Air Force."

There was no doubt in the mind of our Chief of Naval Operations on May 19, 1982, when he testified about the American "blue chips of superiority." To the question, "What are the Russians afraid of?", he answered, "Our superior tactical air at sea is number one. . . . Our superior SSN submarines are better—probably 5 to 8 years in technology. . . . We have a superior cruise missile which the Soviets cannot emulate. . . . We have an amphibious force that they cannot match. . . . Weapons systems individually in my judgment, are superior to the individual weapons systems in Soviet combatants."

Now almost one year later, General Meyer, I would like to ask your opinion of the power of our U.S. Army force. What are the Russians afraid of with regard to the U.S. Army?

General **Meyer**. Let me start off by saying that they are not afraid of our size. The Soviets have always had significantly larger numbers in their land forces, so the issue revolves around the respect—and I use that word instead of fear—that they have for the quality of our Army: our soldiers and leaders, their initiative and training, and our equipment, which is in some cases superior to that of the Soviets.

The Soviets respect the quality of our soldiers, our non-commissioned officers, and our troop leading officers. They recognize the lack of initiative and the need for centralization within their own forces, and, knowing the potential for confusion on future battlefields, respect the advantage that intelligent, imaginative and in many cases, battle-tested troop leaders and willing soldiers convey to units in demanding tactical situations. This respect, I am sure, borders on fear when the Soviets consider our ability to destroy their command and control apparatus and to disrupt their well-rehearsed tactical plans through such applications of power as AirLand Battle and modern equipment give us.

In a larger sense, they fear that the ongoing momentum of our Army enhancement programs will erode or at least offset the benefits that their superior numbers and their own continuing modernization programs have conferred on them as a superpower.

Questions Submitted by Senator Sam Nunn

HEADQUARTERS BUILDING AT FORCES COMMAND

Senator **Nunn**. Mr. Secretary, what is the status of Army plans with respect to the Headquarters Building for the Army Forces Command at Fort McPherson, Georgia? When does the Army intend to initiate a contract for construction schedule? Do you as Secretary of the Army remain fully committed to this requirement as you testified last year and as two previous Secretaries of the Army testified?

Secretary **Marsh**. The Army intends to construct the project out of savings from other fiscal year 1983 projects as directed by Congress. The design will be completed in June 1983. The construction contract will be awarded when Congress permits the Army to proceed with projects to be constructed from savings. My position has not changed on this project.

Senator **Nunn**. General Meyer, do you continue to support the construction of a headquarters for Forces Command at Fort McPherson as you testified last year?

General **Meyer**. Yes, I continue to support that construction.

PROCUREMENT PROCESS

Senator **Nunn**. Mr. Secretary, last year you testified about the work you had underway related to Army procurement and the procurement process. The Army has some notable successes in containing cost growth as reflected in the latest SAR compared to previous SARs. What accounts for that success and what additional initiatives are needed?

Secretary **Marsh**. One reason for this trend toward reduced cost growth is the Army's continuing emphasis in improving acquisition management. The Army has been an active participant in the Defense Acquisition Improvement Program (DAIP) and, in addition, has initiated efforts which have yielded many recommendations from the following groups:

Secretary of the Army—Army Cost Discipline Advisory Committee (CDAC).

Assistant Secretary of the Army (Research, Development and Acquisition)—Army Acquisition Steering Group.

These major efforts indicate that in order to control costs, action in certain areas is required. Several examples include providing for increased program stability, obtaining better management information, and producing better and more frequent cost estimates. The Army has made great strides toward containing cost growth with these initiatives. With respect to the CDAC recommendations, the Under Secretary of the Army and the Vice Chief of Staff of the Army conduct a follow-up of the initiatives every 6 months to insure compliance. Efforts continue to identify additional initiatives for implementation.

A second reason for lower cost growth, as reflected in the latest SAR, was the large decrease in the economic cost change category during the period 30 September–31 December 1982. The cumulative decrease in all of the Army SAR programs amounted to nearly $2.3 billion in the Economic category and is solely attributable to the effect of the economy on the programs, thus significantly decreasing total cost growth.

NUNN UNIT COST AMENDMENT

Senator **NUNN**. Mr. Secretary, has the Nunn unit cost amendment passed in 1982 and amended in 1983 helped you in your statutory responsiblity for management of Army procurement? Are there any changes or improvements needed in this law?

Secretary **MARSH**. My staff reports increased favorable involvement in the management of Army procurement in abiding by the provisions of your law. At my direction, the Army had already entered into implementing a number of cost control and discipline management initiatives which fortunately fitted the Nunn amendment requirements of fiscal year 1982. Being held to account to higher authority on an exception basis, as well as our usual annual budget justification, created an incentive to avoid cost threshold breaches which rapidly spread not only through the Army but also through our major management. The results have been a keener mutual appreciation of cost control and discipline. However, I have the following suggestions for improvement:

First, data reported by the Program Manager (PM) in the first quarter of each fiscal year in his unit cost report to the service Secretary should be consistent with the President's budget and the Selected Acquisition Report (SAR) as of 31 December. On 7 January, this budget data is not available. As a result, the PM submits his unit cost report to the service Secretary on 7 January to meet legal requirement and then has to revise the report when the President's budget is transmitted to the Congress. The due date for each comprehensive annual SAR is based on when the President's budget is transmitted to the Congress, since the President's budget and the SAR data have to be consistent. Recognizing this, the reporting due date for the PM's unit cost report to the service Secretary should be changed for the first quarter from "not more than seven days after the end of the quarter" to not more than 7 days after the date the President's budget is transmitted to the Congress.

Second, given that something causes a report or certification to be late, the penalty clause for failure to submit a report or a certification to the Congress should be changed. The law currently states that additional funds may not be obligated in connection with such major defense acquisition programs. We propose that the law be revised to read that additional MCA, RDT&E or Procurement funds may not be obligated in connection with acquisition contracts related to such major defense acquisition programs. This will allow the Army to complete the execution of the obligated funds against the acquisition contracts already awarded but will assure that we will have to come to the Congress in order to continue any further acquisition under the program.

There may be other changes deemed necessary as we learn with the continued execution of the Nunn-McCurdy amendment, and I would appreciate your leaving the door open to future recommendations.

NEW WEAPONS PROCUREMENT

Senator **NUNN**. Mr. Secretary, what can be done to insure more realistic initial cost estimates for new weapons procurement? What are you doing as Secretary of the Army to improve this part of the procurement process?

Secretary **MARSH**. I chartered a Cost Discipline Advisory Committee (CDAC), composed of 5 non-DOD personnel which convened in mid-Sept. 81. Improvements have been made as a result of CDAC recommendations in its December 1981 report. First, the Army has implemented a Cost Research program designed to improve cost data bases, estimating equations and overall costing methodology in general. Second, we have developed a new procedure for quantifying the risk associated with transitioning a weapon system from development to production. This procedure is intended to provide total risk assessing cost estimates for production (TRACE-P). Third, we have recently established joint DA/DARCOM teams to do the independent cost estimates (ICE) on major programs as a check of the reasonableness of Program Managers' baseline cost estimates (BCE). This concept puts emphasis on the major cost drivers and applies to initial, as well as updating existing, cost estimates. Finally, cost risk review teams are formed for analysis of cost estimates on selected systems approaching ASARCs. The risk review helps ensure that the most likely estimate is used for costing and is a subject for discussion at the ASARC.

ROLE OF THE U.S. ARMY

Senator **NUNN**. General Meyer, on page 209 of the Secretary of Defense Posture Statement, Secretary Weinberger states: "Given the Soviet's capability to launch simultaneous attacks in Southwest Asia, NATO, and the Pacific, our long-range goal is to be capable of defending all theaters simultaneously." Is the U.S. Army capable of its role in this strategy today, and if not, when will it meet these requirements? Will this require additional funding and, if so, is this a realistic goal?

General **Meyer**. The Soviets, whether through their own forces or in combination with those of its surrogates, are increasingly capable both in quality and quantity of simultaneously threatening Free World interests on a global basis. It is a range of capabilities across the full conflict spectrum against which, as Mr. Weinberger portrays, we must develop the means to counter ever-increasing threats to our interests.

It is nevertheless clear that we cannot now adequately protect all our interests simultaneously. There will always be an element of risk because, to have the forces you need to meet all possible contingencies around the world—and undertake them simultaneously—would require force levels of a size beyond that supportable in peacetime. So, there will always be an element of risk. Our programs and our strategy must therefore seek to reduce that risk.

As in the case of your quote from Mr. Weinberger's fiscal year 1984 Posture Statement, one of the ways to reduce that risk is through force flexibility. The Army is doing its part to make its forces more strategically deployable: among others, by lightening the force while making it more lethal and by insuring a range of force capabilities which can be appropriately tailored to meet the threat. These steps while important are not of themselves enough. There are two imperatives: better command and control and improved strategic mobility. These allow us to be more responsive to different requirements in differing environments worldwide. Of greatest importance is the need to be able to move those forces rapidly in the proper configuration and in sufficient size to threatened regions worldwide. Adequate strategic mobility assets (airlift and sealift) for the rapid projection of robust land power is essential to deter aggression or, as necessary, to secure our interests at the threatened point, even in austere regions.

FIVE YEAR PLANS FOR GROUND FORCES

Senator **Nunn**. General Meyer, last year I asked you about the Reagan five-year plan compared to the Carter five-year plan for ground forces. Could you update the data you provided on pages 858–859 of Part II of the fiscal year 1983 SASC Authorization Hearing Book? Would you please use the same format and this year please include totals?

General **Meyer**. Following is the data you requested. The data has been updated to the January 1983 President's budget. Constant dollars were computed using January 1983 inflation indices.

FIVE-YEAR PLANS FOR GROUND FORCES

	Quantity	Current year	1982 constant
Carter Plan			
M1 tanks:			
1982	569	$1,043.8	$939.3
1983	627	1,029.7	869.9
1984	847	1,384.9	1,101.5
1985	834	1,437.1	1,078.7
1986	822	1,505.1	1,067.6
Total	3,699	6,400.6	5,057.0
Fighting vehicles:			
1982	464	693.1	623.7
1983	427	652.0	550.8
1984	469	666.0	529.7
1985	651	916.6	688.0
1986	637	954.8	677.3
Total	2,648	3,882.5	3,069.5
Attack helicopters:			
1982	8	293.1	265.4
1983	44	464.7	392.1
1984	51	439.2	350.2
1985	78	612.7	461.0

FIVE-YEAR PLANS FOR GROUND FORCES—Continued

	Quantity	Current year	1982 constant
1986	80	595.4	423.3
Total	261	2,405.1	1,892.0
Utility helicopters:			
1982	78	372.6	337.4
1983	90	418.1	352.8
1984	70	314.2	250.6
1985	67	310.7	233.8
1986	49	249.2	177.2
Total	354	1,664.8	1,351.8
Reagan Plan			
M1 tanks:			
1982	700	1,275.8	1,148.1
1983	855	1,540.2	1,301.2
1984	720	1,361.2	1,082.6
1985	720	1,491.0	1,119.1
1986	720	1,766.7	1,253.2
Total	3,715	7,434.9	5,904.2
Fighting vehicles:			
1982	600	797.6	717.8
1983	600	774.1	654.0
1984	600	766.0	609.2
1985	830	958.5	719.4
1986	1080	1,261.3	894.7
Total	3,710	4,557.5	3,595.1
Attack helicopters:			
1982	11	437.9	396.5
1983	48	688.4	580.8
1984	112	1,219.3	972.3
1985	144	1,159.9	872.8
1986	144	1,139.8	810.3
Total	459	4,645.3	3,632.7
Utility helicopters:			
1982	96	438.1	396.7
1983	96	418.0	352.7
1984	84	332.4	265.1
1985	78	359.1	270.2
1986	78	380.5	270.5
Total	432	1,928.1	1,555.2

LIGHT ARMOR VEHICLE

Senator **Nunn**. General Meyer, what is the current Army program in the light armor vehicle area and how does this relate to the new Army doctrine?

General **Meyer**. Because the size of our Army is constrained and the contingencies for which we must be prepared to respond are varied, the Army must be flexible and prepared to respond to various scenarios. These scenarios encompass both NATO and Non-NATO environments and require a mixture of heavy and light forces. The Army's new AirLand Battle doctrine is the key to force modernization. That doctrine is specifically designed to take advantage of new weapons systems and new unit designs and additionally provides the basis for our requirements. From a tactical viewpoint our objective is to disrupt enemy follow-on echelons and use this delay to strike and quickly defeat the assault echelon.

The Light Armored Vehicle (LAV-25) program, which we are jointly executing with the Marine Corps, is designed to provide our light forces with one of several new weapons systems that is strategically deployable, tactically mobile and has an assault capability against threat light armored systems. We plan to complement the LAV-25 in light divisions with the TOW missile mounted on the High Mobility Multipurposed Wheeled Vehicle (HMMWV). TOW will give light divisions the capability of defeating threat tanks. We are currently executing a contract to procure 680 LAV-25's in order to equip four active Army divisions and one National Guard Division. The procurement quantity also includes vehicles for a war reserve, maintenance float and the training base. The LAV-25 enhances our ability to implement the AirLand Battle doctrine in our light divisions.

AIRLAND BATTLE

Senator NUNN. General Meyer, last year we discussed the AirLand Battle concept and you gave your views on the changes and shifts in emphasis. How is this proceeding? How are the Army and other Services coordinating and what is the role of OSD? How is the Army R&D and procurement cycle responding to these shifts?

General MEYER. As of 20 August 1982, AirLand Battle, as expressed in FM 100-5, is the Army's operational doctrine. The changes and shifts in emphasis from the previous FM 100-5 are fast becoming the way in which the Army will execute its missions.

With respect to how the Army and other Services are coordinating, the Army and the Air Force are very close to formalizing the U.S. Air Force's support for Airland Battle. We have been working closely with the Air Force to clarify our interpretations and strengthen our joint initiatives. Within the JCS, the Army is working with the other Services in programs to develop Joint doctrine and to establish the means to coordinate development of tactics, techniques and procedures for new technologies. Our Training and Doctrine Command has presented briefings on AirLand Battle to key personnel of all the Services and within OSD. We will continue our efforts to coordinate AirLand Battle with the other Services.

I see the role of OSD as one of guidance, management and continued support, but in the development of doctrine, the Service must shoulder the responsibility.

The Army's R&D and procurement cycle is responding to these shifts in emphasis by reorienting on the development and acquisition of those systems that support, or enable us to better execute, the AirLand Battle Doctrine. We have new emphasis on systems to maneuver, see deep, attack deep and command and control the battle. We have also begun to work with the USAF, early in the POM cycle, to coordinate the development of our Service POMs.

HELLFIRE MISSILE

Senator NUNN. General Meyer, what is the status of the Hellfire Missile program and how well is the missile performing in tests? What additional platforms, if any, are being studied by the Army for Hellfire use?

General MEYER. The Hellfire continues to be one of the Army's brightest success stories. It is highly effective against threat armor and continues to prove its reliability, versatility and accuracy in tests and demonstrations. Fiscal year 1984 will be the third year of procurement for the system. The Army has adopted a new acquisition strategy which develops a competitive dual source production capability for the missile. This competition will result in cost savings to the Government while providing two qualified producers (Martin Marietta and Rockwell International), significantly expanding the industrial base, and improving mobilization capability. Developmental testing for the Hellfire missile system was essentially complete at the time of last year's testimony. The Army still has six missiles in environmental storage testing, but the overall developmental test results show a missile reliability of 0.93 [deleted].

Additional lot acceptance tests will be conducted in a fly-before-buy program prior to delivery of the production systems.

Within the past year the Army has successfully demonstrated launching Hellfire from both a UH-60 Black Hawk and a commercial utility cargo vehicle (CUCV). Although requirements do not currently exist for these launch platforms, the Army will continue to examine ways to exploit the full capabilities of the Hellfire missile system.

BATTLEFIELD NUCLEAR SYSTEMS

Senator NUNN. General Meyer, is there any analysis and/or study underway by the Army on the issue of battlefield nuclear systems and their roles in the future in terms of both deterrence and military capability?

General MEYER. The study and analysis of future battlefields to determine how changes in the threat affect nuclear force roles and requirements is an on-going process within both the Army and other elements of DOD. The Theater Nuclear Studies program managed by the Defense Nuclear Agency is a good example. The Army participates in and draws from that effort. The most recent effort by the Army Staff is an assessment of the deterrent impact of our battlefield systems from the Soviet perspective.

FORWARD DEPLOYED FORCES

Senator NUNN. General Meyer, you have expressed some concern in years past over the percentage of the U.S. Army forward deployed and the implications for personnel and readiness as well as costs. What are your current views in this area?

General MEYER. To minimize turbulence, the CONUS to OCONUS ratio should be around two to one. In fact, the active Army is closer to 57:43 overall, with some key specialties having more than half overseas. Of particular concern is the percentage of our combat force overseas: 53 percent. For those personnel, repetitive tours overseas—with less than 3 years in CONUS—are the norm, a fact that makes retention difficult, especially in our mid-grade NCO's. If the Army cannot retain those NCO's, there will be a direct link to reduced combat effectiveness.

HIGH TECHNOLOGY TEST BED

Senator NUNN. General Meyer, what progress has occurred since last year at the High Technology Test Bed 9th Infantry Division?

General MEYER. The High Technology Test Bed continues to make excellent progress in the Army's continuing efforts to develop a highly deployable, tactically mobile, and lethal light division. Our overall objective for this program is to field a prototype High Technology Light Division (HTLD) in fiscal year 1986 and in so doing accelerate both the force development and materiel acquisition processes.

In the past year the High Technology Test Bed (HTTB) has executed a full schedule of simulations and field evaluations of promising new operational concepts, organizations, and equipment mixes. From this and previous work, the HTTB has developed the organizational documentation for all the High Technology Light Division (HTLD) units to include the equipment and personnel requirements. A detailed transition schedule has been prepared and twelve units of the division will transition to the HTLD design this fiscal year.

In addition during fiscal year 1982 the HTTB defined and documented the materiel requirements for the HTLD. However, this was out of cycle with the Planning, Programing, and Budgeting System and the congressional authorization and appropriation cycles. In order to meet the required fielding dates and the need to accelerate the acquisition process, the Army submitted an fiscal year 1982 reprograming request for eight HTLD systems. Congress approved two of the eight systems which was a setback for the transition of the 9th Infantry Division to the HTLD configuration. As stated last year, the Army plans to submit a fiscal year 1983 reprograming for the two systems approved in fiscal year 1982 and to initiate a limited number of new programs for the HTLD. The fiscal year 1984 budget includes HTLD requirements for the systems initiated through the reprograming requests and new programs.

In summary, much progress has been made in the past year. With congressional support, the Army's High Technology Test Bed programs are beginning to produce fielded and equipped High Technology Light Division units.

QUESTIONS SUBMITTED BY SENATOR CARL LEVIN

Senator LEVIN. General Meyer, the first page of your joint posture statement on the fiscal year 1984 Army budget with Secretary Marsh—the very beginning of your entire message to Congress—is a quote by former Army Chief of Staff, General Creighton Abrams on the importance of conventional forces in the nuclear age. You quote: "In this era of nuclear balance, deployed conventional forces assume a much increased weight in the equation of deterrence—especially land forces. Troops on the ground are the most believable expression of a nation's intent."

General Meyer, it was reported that you voted against the Dense Pack Deployment for MX based on your concern—apparently shared by the chiefs of the Navy and Marine Corps—that strategic modernization like MX and B-1B would consume too much of the defense budget in the future and that the needs of the conventional forces would be inadequately funded. Is this an accurate report of why you cast your vote against MX/Dense Pack?

General **Meyer**. The issue is not a vote against the MX missile per se. In fact, the members of the JCS have indorsed the requirement for MX because of the improvements the missile provides for successful attack of Soviet hardened targets. All of our recent intelligence credits the Soviets with hardening not only the ICBM force but also other military, political, and industrial-economic assets.

As to the reservations cited, the principal concern is based on the premise that deterrence involves more than just an adequate number of strategic offensive forces. Our national security demands total deterrence across the spectrum of warfare. For this, we require credible general purpose forces—conventional and non-strategic nuclear—to complement our strategic nuclear capability.

The dilemma is clearly one of competition among these important programs for limited resources, particularly dollars. The Army's vote, if you choose to call it that, was a reflection of the conviction that this Nation must maintain a balanced deterrent. Even more vital, was the need to express deep concern with the uncertainties in the Dense Pack basing—costs, long term survivability and so on—which warrant more care in deciding whether to invest in such a concept, not knowing the full implications for the long haul, especially regarding the very important business of promoting progress in future arms control negotiations.

MODERNIZATION PROGRAM

Senator **Levin**. General Meyer, what other necessary systems have been delayed and how will these delays affect the Army's combat readiness?

General **Meyer**. In order to develop a well balanced, affordable Army procurement program, we prioritize all procurement and RDTE programs. When funding levels are insufficient for us to do all we should do, lower priority programs are deferred or terminated. Some of those decisions made in the fiscal year 1984 budget were reduction in the M1 Tank schedule, reduction of Stinger missiles, and other ammunition production levels. In addition, we terminated the Rattler, 2.75" Rocket procurement and the Armored Forward Area Rearm Vehicle (AFARV).

However, the above decisions do not reflect a decreased emphasis on readiness but rather an increased emphasis. In order to maintain the balanced program I referred to earlier, we have deliberately set out to insure a faster reduction of unit common and support equipment shortages. Also, there is increased emphasis on solving the Reserve Components equipment problems, especially those items that are in the fiscal year 1984 budget, we added about $300M to the Other Procurement accounts for readiness type items, a good portion of which will go to the Reserve Components. We also recognize and have planned to meet the increased requirements for common support type items that result from the fielding of new weapons systems.

FUNDING STRATEGIC PROGRAMS

Senator **Levin**. General Meyer, as the requirements for funding major strategic programs continue to grow in the future, are you concerned that the Army's needed conventional forces improvements will continue to be underfunded?

General **Meyer**. We must seek an appropriate balance among all our military programs. We must not pursue one capability to the exclusion of other essential capabilities or to the detriment of effectiveness of the total force.

There is no question that we must take the necessary steps to insure the continued effectiveness of our nuclear deterrent posture. We must insure that no enemy would be tempted to attack through a perception of U.S. vulnerability or to attempt to gain coercive leverage. It is also true that our vital interests are endangered by the full range of threats to our interests below the nuclear threshold. In an environment of nuclear parity, the Soviet Union's adventurism is manifested in its aggressive use of its only real instrument of foreign policy, military power. In such an environment, the role of conventional land power is more important not less.

If we were to become weak conventionally or were we to pursue in an unbalanced attack, allow coercion, or precipitate the terrible risk of an early resort to nuclear weapons to compensate for conventional weaknesses.

We must deter Soviet and Soviet-surrogate aggression worldwide through a variety of means. We must reaffirm our commitment to our friends and allies by working with them to increase their own capabilities. We also need to improve the capabilities of our own land forces, by proceeding to develop more flexible forces which are strategically deployable, technically proficient, and doctrinally sound. Indeed, our conventional capabilities are the essential glue that holds our alliances together, preserves deterrence across the spectrum, keeps the nuclear threshold high and responds appropriately across the full range of capabilities.

The Army is launched on a period of transition to quality. Key to this transition is our equipping program. Further budget constraints may jeopardize the pace and the fullfillment of our essential modernization.

PROCUREMENT NEEDS

Senator **Levin**. General Meyer, much has been said about whether the overall DOD budget strikes a proper balance between funding for readiness—primarily operations and maintenance, ammunition and training funds, although obviously some procurement is included—and funding for what are known as the "big ticket items"—the large, increasingly costly and complex weapons which tie up funds for several years.

Assistant Secretary of Defense for Logistics, Larry Korb, recently was quoted as saying that the Pentagon expects the O&M budget to grow during the next 5 years about 6 percent annually after inflation, "even though procurement is going up twice as fast as that. . . . A question persists whether these modest . . . rates will sustain the readiness level we need."

Looking at the entire DOD budget, not just the Army's, procurement needs are greatest among all the services, would you agree with Doctor Korb? Do you share his concerns?

General **Meyer**. There are, indeed, many different objectives which must be balanced in developing a budget for DOD or for the Army. Of all these objectives, readiness has been and remains the number one priority for all of DOD. When looking at the individual programs which make up the budget, it's important to have a full appreciation of what readiness really is. While readiness clearly requires the sorts of programs we finance with operations and maintenance funds—unit training, fuel, spare parts, etc.—it also demands that the Army be properly equipped. Thus, within the readiness umbrella, we are giving special emphasis to programs to equip the Total Army, both by filling existing shortages and by modernizing the force with new, more capable equipment. These programs are part of what we consider to be a coherent Army budget, in which all objectives have been properly balanced in order to provide the Nation with the most capable Army possible.

PROCUREMENT BUDGET

Senator **Levin**. General, we have a chart which shows that the proportion of the total DOD annual budget represented by prior year obligations/commitments is going up due to the large surges in procurement, and the percent made up of funds appropriated in each current year is declining. People are concerned that when the defense budgets cuts which we all know will come in the next few years actually arrive, Congress will be forced to cut readiness and O&M funds and force structure because they will be the only "controllables" in the defense budget. Do you share these concerns? Would it be wiser to reduce some of the big-ticket procurements in the other services to minimize this problem?

General **Meyer**. Our fiscal year 1984 budget request is absolutely essential if we are to continue the administration's efforts to make up for years of inadequate resources. I am therefore concerned about the adverse impact of any budget reductions, whether they be applied to operations and maintenance, force structure or any other component of the budget. The perception that budget cuts will force us to make all our reductions in O&M and force structure is valid only if a potential budget cut is intended to generate immediate outlay reductions, since only our operations and pay accounts have high outlay rates in the first year. If the Congress should determine that budget cuts are necessary, I would ask that, rather than focus on outlays and other similar factors, Congress first come to terms with the question of which of our many essential tasks we are not to accomplish. With this guidance, and the acceptance by both Congress and the American people of the resulting increased risks to our National security, we could identify the appropriate reductions.

TRANSFERRING FROM ACTIVE TO RESERVE

Senator **Levin**. The proposal already has been made that we should cut 100,000 people from the Active Army in fiscal year 1984 and transfer their function to the

Guard and Reserves—all in an effort to save money. I am heartened by Secretary Marsh's strong rejection of this option on page 2 of his statement. I wonder if you, General Meyer, would give your own views on such a proposal, especially as to whether you think it would be a false economy and an unwise signal to our allies and adversaries?

General **Meyer**. Secretary Marsh's statement aptly identifies the problem the Army would face if required to reduce our active duty strength further. Further a reduction of the magnitude suggested would signal a move to "Fortress America" thinking causing our allies to question our commitments and jeopardizing our conventional capability to such a degree that nuclear warfare would become our only viable option. Two years ago, we recognized that we would need to maintain a smaller active force than was required so that we would continue essential modernization, increase readiness, and improve sustainability of the Army. The Army has come a long way in implementing this plan. Further reductions in the magnitude proposed will result in a reduction-in-force of military manpower thus making an Army career less attractive to the detriment of our effort to recruit and retain the quality of soldiers necessary to fight and win on the modern battlefield. A reduction of this magnitude will also result in a civilian manpower reduction-in-force, and would most likely force some base closures.

INADEQUACIES IN THE BUDGET

Senator **Levin**. General Meyer, your combined posture statement concludes with a list of inadequacies in the Army budget. You say it still does not provide enough manpower for the mobilization training base, that training ammunition requirements are underfunded as is the program to reduce depot maintenance backlogs of vehicles and aircraft.

Further examination of the fiscal year 1984 DOD budget request shows that the Army's readiness programs are underfunded as follows—force modernization funding for spares, and manuals, and maintenance support activities. The Army's war reserve/training ammo procurement budget actually declines from fiscal year 1983 to fiscal year 1984, as does its secondary items spare parts budget.

The Army has told me that the fiscal year 1984 and fiscal year 1985 procurements of tank training ammo will not support even artifically constrained requirements, and thus, "will result in a further curtailment of tank crew gunnery training."

General Meyer, isn't this a perfect example of how we are robbing readiness of Army conventional forces to pay for big ticket procurement items in the other services?

General **Meyer**. There are a number of inadequacies in our budget, but these are the result of having to allocate limited dollars among many legitimate competing requirements, not the result of robbing any individual budget component requirements, not the result of robbing any individual budget component to pay for others. Our goal, which I feel has been accomplished in the fiscal year 1984 request now before Congress, is to build a balanced budget which provides the greatest capability with the available resources. I should also point out, as Secretary Marsh and I have stated on other occasions, that readiness and procurement are not separate and distinct from one other. They are inextricably linked, since an Army that is ready is one that is equipped with the right quantities of modern capable equipment. Conversely, an Army that is well-trained and well-handled but does not have either the proper quantities or quality of equipment is an Army that is not ready to accomplish its deterrence and warfighting missions. Readiness, in all its components, is our number one priority, and this priority is reflected in the balanced program we have submitted to you.

SUSTAINABILITY

Senator **Levin**. General Meyer, the administration's wrong-headed priorities are best exemplified by this statement by the Under Secretary of Defense for Research and Engineering, Dr. DeLauer, who was quoted as saying that the Pentagon's "sustainability" objectives to stockpile war material are less important than development of new weapons. "My view is that 2 days is as good as 30 days," Dr. DeLauer is quoted as saying.

General, would you agree that this demonstrates wrong defense priorities? Do you agree that being able to fight only 2 days is as good as being able to fight 30 days? If this were true, wouldn't this mean we might have to resort to earlier use of nuclear weapons to try to stop an adversary's attack?

General **Meyer**. While it is difficult to address a quote attributed to Dr. DeLauer without knowing the context from which it was taken, I would hazard a guess that his statement that "two days is as good as 30 days" refers to sustainability objectives for the sorts of items which might be routinely available in sufficient quantity after the outbreak of hostilities and therefore need not be stockpiled in peacetime. We do, of course, take such factors into account in planning our war reserves program.

More to the point of the question, however, our goal, if deterence fails, is to be able to conduct combat operations for as long as necessary in order to terminate conflict on terms favorable to the United States and its allies. Further, our intent would be to fight at the lowest possible level of intensity, consistent with the successful termination of the conflict. Thus, it is the policy of neither DOD nor the Army to prepare for a short war which would demand an early escalation to nuclear weapons.

IMPACT OF READINESS SHORTFALLS

Senator LEVIN. (1) Will the Army suffer from the following readiness shortfalls in fiscal year 1984 under the current budget request? (2) What will be their impact?

a. Army Munitions Procurement ($4.3B in fiscal year 1983 to $4.216B in fiscal year 1984).

Answer. The Army received ammunition appropriations totaling $2.122B in fiscal year 1983 and submitted a fiscal year 1984 request of $2.334B. The reduction in Army Munitions Procurement in fiscal year 1984 will have an impact on our unit training programs in fiscal year 1986, after the buy is delivered to units from production.

Specific shortfalls against established STRAC training requirements are projected in delivery of:

50 Cal 4+1 (2,500,000 rounds).

Impact: Will be short 30 percent of minimum training ammunition to qualify tank crews. Units affected will be armored battalions and brigades.

20mm TPT (2,100,000 rounds).

Impact: Will be short approximately 50 percent of annual training, forcing only 1 of 2 gunners on each system to be qualified. Units affected will be air defense battalions.

30mm TPT (263,000 rounds).

Impact: Fails to qualify all AAH pilots for aerial gunnery due to 40 percent ammunition shortfall below minimum levels. Units affected will be aviation battalions.

40mm TPT (DIVAD) (201,000 rounds).

Impact: Will be short ⅔ of minimum training ammunition to qualify DIVAD gunner for division level air defense. Units affected will be air defense battalions.

45mm Cal Ball (22,800,000 rounds).

No training will be conducted with 45 cal. Will affect individuals throughout the Army. Principal impact will be security, armor, and infantry units.

b. Two categories of Tank Training Ammunition (fiscal year 1984 funding falls from fiscal year 1983; gaps between requirements and available ammunition widens):

Ammo type	TPT (percent)	DSTP (percent)
Gap between fiscal year 1983 and requirements (shortfall)	20	15
Gap between fiscal year 1984 and requirements (shortfall)	44	57

The Army will not suffer because of reduced funding for tank ammunition budget request. Reduced requirements for tank training ammunition are due to an extensive effort to articulate standard Army-wide training strategies needed to sustain readiness using specified quantities of ammunition. Earlier estimates of training ammunition requirements have been refined through a disciplined, interactive process.

105 TP-T requirement falls from 376 thousand rounds in fiscal year 1983 to 302 thousand rounds in fiscal year 1984 to 282 thousand rounds in fiscal year 1985. Delivery of fiscal year 1982 procurement combined with assets on hand in fiscal year 1984 will support fiscal year 1984 requirements. Delivery of fiscal year 1983 procurement combined with assets on hand will support a fiscal year 1985 requirements.

105 TP-DS requirement falls from 468 thousand rounds in fiscal year 1983 to 400 thousand rounds in fiscal year 1984 to 367 thousand rounds in fiscal year 1985. De-

livery of fiscal year 1982 procurement combined with assets on hand in fiscal year 1984 will support fiscal year 1984 requirements. Delivery of fiscal year 1983 procurement combined with assets on hand will support a fiscal year 1985 requirements. The requirement for this round will continue to decrease as a new 105 replacement round and the 120mm tank gun are fielded.

c. Force Modernization Support funds to provide spare parts, manuals, etc., to introduce new weapons into the Army ($249M or 13 percent short of the requirement in fiscal year 1984):

Answer: (1) Yes, the Army potentially can suffer from the shortfall in force modernization operating and support funds. The 13 percent underfinancing was based on anticipated slippage; however, a recent review of this program based on fielding distribution plans published earlier this month indicates the slippage has yet to materialize.

(2) We must fund the operating costs of the systems we field. The program will be recosted based on updated distribution plans for the Command Operating Budget; any unfinanced requirement that remains will be addressed via a reprograming action or other programmatic tradeoff.

ARMY DEPOT MAINTENANCE BACKLOG

d. The Army Depot Maintenance unfinanced requirement will result in deferral of depot level overhaul for specified equipment.

However, the program presented in the fiscal year 1984 budget represents what the Army considers essential for readiness and modernization. In particular it is important that the procurement schedules be maintained. The acquisition of modern equipment will improve Army readiness. Given the impact of the acquisition program on readiness, it was considered necessary to delay, in the short term, some maintenance requirements.

A portion of the unfinanced growth in fiscal year 1983 and fiscal year 1984 is attributable to the requirement imposed on the Department of Defense to absorb 25 percent of the fiscal year 1983 pay raise. Continued favorable support for this program, however, will permit the Army to reduce the unfinanced portion to an acceptable level.

MAINTENANCE SUPPORT FUNCTIONS

e. Yes. Underfunding the Army's Maintenance Support Activities will have an adverse effect on readiness and sustainability.

Maintenance Support Activity funds support the operating life cycle cost of equipment/systems from production through fielding and operations. These funds are critical to up-front Integrated Logistics Support (ILS) functions in modernization such as provisioning, new equipment training and technical assistance.

A $100 million shortfall in technical manuals will be experienced. This unfinanced requirement is serious in that manuals are key to readiness and must be kept current.

Maintenance Support Activities correct hardware problems on fielded equipment, provide for Sample Data Collection, Reliability Centered Maintenance, and Reliability and Maintainability Programs. A $31 million shortfall will occur in these programs.

The program also supports the correction of hardware problems on fielded equipment and finances product improvements and avoids expensive development programs. A $23 million shortfall will be experienced in this area.

The balance of the unfunded requirement will be spread throughout the remainder of the Maintenance Support Program.

WAR RESERVE SPARE PARTS

f. The Army will not suffer in fiscal year 1984 as a result of decline in war reserve spare parts from fiscal year 1983. The Army initiative was to move money from fiscal year 1987 to fiscal year 1983 to reduce an out year bow wave and procure materiel and equipment at an earlier timeframe. This movement of money created a spike in fiscal year 1983. Army has planned a funding ramp to attain desired level of sustainability in the out years.

IMPACT OF READINESS SHORTFALLS

Senator LEVIN. As of August 1982, a GAO Draft Report found that the Army's 12 Reserve training divisions were staffed between 51 and 76 percent of wartime required strength levels. The Reserve Component training divisions represent approximately 75 percent of the Army's recruit training capability upon mobilization.

Will the Army's mobilization training base expansion capability suffer from readiness shortfalls in fiscal year 1984 under current budget request? What will be the impact?

Answer. The Army has no budget request in fiscal year 1984 to offset strength shortfalls for the USAR Training Divisions. There have been several recent developments which serve to lessen the impact of shortfalls. These initiatives include:

A reorganization of the training divisions, effective in November 1982, reduced the wartime required strength levels by 6,582 spaces while raising authorized strength levels by 2,282 spaces. The training divisions are currently staffed at 99.4 percent of authorized (peacetime) levels which equates to 73.3 percent of wartime required.

An Army policy now allows preassignment of military retirees to mobilization stations for subsequent assignment to fill nondeploying MTOE/TDA unit positions which will include training divisions. This will further reduce pretrained manpower shortfalls.

Revised mobilization training output requirements were produced in February 1983 reflecting a significant reduction in trained manpower needs during mobilization. These new requirements will probably necessitate adjustments in training division strength to support the expanded training base during mobilization. Further analysis and review will be required before any impact on shortfalls can be realized.

QUESTIONS SUBMITTED BY SENATOR EDWARD M. KENNEDY

ALLIES' DEFENSE SPENDING

Senator KENNEDY. What is the rate of real growth in defense spending of our NATO allies (as a whole and by country)? What functions could the allies perform that they are not performing now? Which of their current functions could they perform better? What functions could they take over from U.S. forces?

General MEYER. Allied contributions to the combined defense of NATO are made in a number of ways. Annually Congress is furnished Secretary Weinberger's Report on Allied Contributions to the Common Defense, which describes the contributions of the NATO nations. This report provides a perspective of allied contributions that considers the various and competing needs of all our defense partners and includes a number of different indices which, when combined, demonstrate a comprehensive measure of national performance.

In the accomplishments column, after 2 years of negotiations, the German government has agreed to provide over 90,000 German reservists during wartime to support U.S. combat forces operating in Germany. This military support will include security of U.S. Air Force facilities; transport, transshipment, and resupply services; evacuation of casualties; prisoner of war handling; and decontamination of personnel and equipment. Support from the civilian side will include transport of personnel, materiel, ammunition, and petroleum; maintenance and repair facilities; telephone services; and expendable supplies. In addition, lines of communication agreements with Belgium, the Netherlands, Luxembourg, and the United Kingdom are in various stages of development, refinement, or completion.

Presently the potential for the allies doing more lies in the areas of combat support, combat service support, and possibly air defense.

IMPROVEMENTS IN DEFENSE

Senator KENNEDY. General Meyer, in your testimony, you mentioned three ways in which we could "improve the way we do defense business"—through JCS reorganization, in civilian-military relations in the Department of Defense, and in relations between the Pentagon and Congress. What are your personal recommendations for improving in each area?

General MEYER. Within the present structure of the JCS, we need to institutionalize a greater role by the Chairman and Joint Staff in the horizontal management of defense resources, specifically in the allocation of resources among the Services. Both OSD and the Services would have to yield some influence to the Chairman to do this, and a major step would be to give him a specific role in controlling pertinent portions of the Defense program and budget.

Within the Department of Defense, I believe we should consider limiting OSD's involvement to policymaking and locating the resources needed for Defense programs, and relinquishing its tendency to manage programs beyond general policy outlines.

The unfortunate lack of confidence between the Congress and the Department of Defense—a comparable lack I might add, that existed in the minds of our Founding Fathers as they framed the Constitution—has resulted in the recent proliferation of overwatch bodies. Each in our system of government, has quickly become the focus of special interest groups, each of which in turn pushes projects attuned to its special and perhaps local needs to the potential detriment of the final coherent defense program needed.

These inefficiencies in the content of our program have been compounded by the inefficiencies of financing it. The vagaries of single year appropriations have not been offset by multi-year authorizations. The current practice of having continuing resolutions rather than an approved budget plays hob with the steady and sustained management which both we and the Congress seek. The restrictions imposed by the CRA are particularly debilitating to the Army which is in the midst of a multi-year comprehensive modernization overhaul. The net effect is an annual assault on readiness and a justified skepticism by our fellow citizens as to the wisdom of our defense expenditures.

Chairman TOWER. Thank you.

[Whereupon, at 12:45 p.m., the committee adjourned, subject to the call of the Chair.]

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 1984

FRIDAY, FEBRUARY 25, 1983

U.S. SENATE,
ARMED SERVICES COMMITTEE,
Washington, D.C.

COST GROWTH IN MILITARY PROCUREMENT

The committee met, pursuant to notice, at 2:35 p.m., in room 318, (Caucus room) Russell Senate Office Building, Senator John Tower (chairman) presiding.

Present: Senators Tower, Goldwater, Warner, Humphrey, Jepsen, Quayle, Wilson, Exon, Levin, and Bingaman.

Budget Committee members present: Senators Domenici, Grassley, Kassebaum, Kasten, Gorton, Metzenbaum, Sasser, and Riegle.

Staff present: James F. McGovern, staff director and chief counsel; James G. Roche, minority staff director; Alan R. Yuspeh, general counsel; Paul C. Besozzi, minority counsel, Christine C. Dauth, chief clerk; Brenda K. Hudson, assistant chief clerk; Willis D. Smith, deputy staff director and chief scientist for the minority; Michael B. Donley, Robert S. Dotson, George K. Johnson, Jr., David S. Lyles, José E. Martinez, Patrick L. Renehan, Carl M. Smith, James C. Smith, professional staff members; and Mark B. Robinson, research assistant.

Also present: Dennis P. Sharon, assistant to Senator Goldwater; John Campbell, assistant to Senator Warner; Ron Kelly, assistant to Senator Humphrey; Hank Steenstra, assistant to Senator Quayle; Mary Shields, assistant to Senator Stennis; Joel Kruzal, Matthew Murray, assistants to Senator Kennedy; Robert Nichols, assistant to Senator Jackson; Bill Lind, assistant to Senator Hart; Greg Pallas, assistant to Senator Exon; Peter Lennon, assistant to Senator Levin, and Kathleen Callahan, assistant to Senator Bingaman.

OPEINING STATEMENT BY SENATOR JOHN TOWER, CHAIRMAN

Chairman TOWER. The committee will come to order.

This afternoon the Armed Services Committee is pleased to host the Budget Committee to receive testimony on the issue of cost growth in military procurement programs. This is an issue of concern for the Armed Services Committee and we welcome the interest expressed by the members of the Budget Committee.

Here to present the testimony for the Department of Defense is Dr. David Chu, the Director of Program Analysis and Evaluation—or PA&E as it is popularly called—in the Office of the Secretary of Defense. Dr. Chu and his staff bear the responsibility for analyzing program costs and formulating independent judgments on force structure and weapon systems effectiveness.

Accompanying Dr. Chu is Mr. Franklin C. Spinney, an analyst on the PA&E staff. Some of Mr. Spinney's work on weapons cost growth has attracted considerable public attention recently—more, I suspect, than even he himself anticipated.

It is my understanding that Mr. Spinney is prepared to answer any questions which may be directed to him. In addition, the committee invites Mr. Spinney to make an opening statement following the statement made by Dr. Chu, if he so chooses.

On behalf of the members of both the Armed Services and Budget Committees, I would like to welcome Dr. Chu and Mr. Spinney. We are very much looking forward to this testimony.

Let me first say that because of the interest expressed by the Budget Committee, the Armed Services Committee has extended an invitation for the members of the Budget Committee to participate in the posture hearings being held for each of the services. That invitation was extended for those hearings that began this morning with the Army and will continue next week with the Air Force and Navy.

I want to reemphasize the fact that members of the Budget Committee are welcome to attend those hearings so that they can put the whole issue of programs into context in considering what the services consider their requirements to be.

Before we proceed further with our witnesses, I would like to yield to my good friend and my boss on the Budget Committee—on which I also serve—the distinguished Senator from New Mexico, the chairman of the Budget Committee, Senator Domenici.

Senator DOMENICI. Thank you very much, Senator Tower. I will be very brief.

I first want to thank you for calling this hearing. As you know, a number of members of the Budget Committee on both sides have been genuinely interested in the procurement estimates. Since we have to at least start the process by setting targets—not only in the military but elsewhere—the reliability of information with reference to the cost of programs is of significance.

Our function is not to interfere in a programmatic manner but obviously, if the estimating of costs for major systems is significantly awry at any time in our history—whether past or future—it is important to the committee in terms of the judgment that we must exercise on the total function and targets.

So, we welcome this important meeting, it ought to be of assistance to us. We know that chronic cost growth of weapons has caused many problems, eventually contributed to the erosion of our relative military posture, and is partly responsible for the national security problems we now face.

But our objective is to rebuild that capability and we all know that. I believe Congress and the American people are willing to provide the resources to do so. As long as the focus of this hearing is on those resources and the reliability of information, I think it is clearly of interest to the Budget Committee and I thank you, Senator Tower, for having us join in this hearing today.

I think we should not spend all out time today on the past, I hope we do spend some time on what we are doing today and how we can improve the future. I would hope that whatever the information is, that the expert witnesses would talk about the future, also.

I thank you very much, Mr. Chairman.

Senator GRASSLEY. Mr. Chairman, a question of procedure.

Chairman TOWER. Could I respond to that in just a moment? Senator Jackson, the ranking minority member of the Armed Services Committee is unavoidably detained this afternoon as is, I understand, Senator Chiles, the ranking Democratic member of the Budget Committee.

Therefore, I see that the next senior man is Senator Metzenbaum. Would you like to make an opening statement, Senator?

Senator METZENBAUM. Thank you. First I would like to commend Senators Kassebaum, Grassley, and Gorton who indicated their concern about our committee, the Budget Committee, hearing from Mr. Spinney. I also indicated that same concern, and I also want to commend the chairman of the Budget Committee for supporting members of the Budget Committee who indicated strongly that they felt the testimony of Mr. Spinney was very relevant to our deliberations with respect to Department of Defense spending.

So, I do join in recognizing that and commending you, Senator Tower, for having seen fit to convene this meeting so that we may hear from both of these gentlemen.

Having said that, let me say that I think that there are probably no Members of the U.S. Congress who do not support adequate Department of Defense spending.

But the fact is that across the board—on both sides of the aisle—I think many of us are worried about whether we are getting dollar value for a dollar spent. I think we are concerned about whether the figures that we receive are indeed actual figures; whether or not there are games played where we lease rather than buy and all of the attendant problems in connection therewith; whether or not the future projections are realistic or not—which certainly involves the subject of our hearing today; whether or not the Department of Defense is doing everything it can to constrain its own spending, and whether it is using the most efficient business methods to do so.

The distinguished Senator from Arizona, Senator Goldwater and I, have raised the question on occasion, the use of competitive bidding.

I think this hearing is significant not alone for the testimony of Mr. Spinney and Mr. Chu, but I think it is an indication of a broad-based concern that many Members of the Senate have as to how Department of Defense dollars are spent and whether we are getting a dollar's value for a dollar spent, and whether or not we can have real confidence in the candor and the integrity of the figures that are made available to us for budgetary purposes by the Department of Defense.

So, I am looking forward to the testimony of both of these gentlemen.

Chairman TOWER. Senator Grassley, if you would forbear let me lay out, sort of, the procedure and then yield for any questions, comments, or suggestions.

It is normally our practice in the Armed Services Committee—because we usually have rather lengthy testimony that incorporates a great deal of detail—to ask our witnesses to submit their statements to be printed in full in the record, in the public record, and ask them to summarize their statements to permit adequate time for questioning of members.

I would expect to follow that procedure today, first calling on Dr. Chu to summarize whatever written statement he may have, and then ask Mr. Spinney to submit whatever material—and anything he wants to submit for the record, and to summarize his statement to permit the maximum time possible for questions from Senators.

I would follow that procedure unless there is a serious objection.

Senator GRASSLEY. Mr. Chairman, I think maybe my question relates to that. So, let me ask the question and see how it fits in with what you have just stated.

Two points that I would like to raise. One is that we on the Budget Committee would like to hear the entire Spinney briefing. Second, I assume that there is some provision for either charts or slides available. It was my understanding that there was going to be.

Those are my two questions of procedure. Can they be granted?

Chairman TOWER. Well, it is my understanding that Mr. Spinney has all of that material, and it is my understanding it is reduced to print so that the charts are actually printed—is that correct—and can be supplied members of the committee?

Mr. CHU. Yes sir. We do have copies of the charts.

Chairman TOWER. And Mr. Spinney, you have all of your charts printed so that we can have them before us.

Mr. SPINNEY. Not all of them, sir, there was not time to print the second half. I have the viewgraphs.

Chairman TOWER. Why not follow this procedure. What is the length of time that you require, Dr. Chu?

Mr. CHU. About 10 minutes, sir; 5 or 10 minutes.

Chairman TOWER. And Mr. Spinney, how much time would you require to give the entire presentation that you had in mind?

Mr. SPINNEY. Depending on the questions, sir, 1½ to 2 hours.

Chairman TOWER. An hour and a half to two hours?

Mr. SPINNEY. Yes, sir.

Chairman TOWER. We expect an attendance of about 23 here so I propose that, if it is the will of the members to go through the entire briefing, that the questioning period be reduced substantially.

Senator GRASSLEY. Mr. Chairman, I think it is very important to go through the entire briefing.

Chairman TOWER. What is the will of the other members of the committee, are you willing to sacrifice question time?

Senator METZENBAUM. Mr. Spinney has indicated 1½ to 2 hours, including questions?

Chairman TOWER. No; the questions would follow the presentation.

Senator **METZENBAUM**. How long would it take you to make your presentation alone?

Mr. **SPINNEY**. Sir, the questions I was referring to are questions of clarification as opposed to "Q" and "A," question and answer. If I cannot make my point clear it takes about 1½ to 2 hours.

Chairman **TOWER**. About 1½ to 2 hours.

Mr. **SPINNEY**. Yes, sir.

Senator **DOMENICI**. Mr. Chairman, I think we ought to have this hearing and make sure that those who have requested that we hold it, hear everything they want to hear. If they do not have time for questions, I understand you will stay late. I do not know how late.

Chairman **TOWER**. I can stay until about 10 o'clock tomorrow morning. [Laughter.]

But if I stay any later, I will be the victim of a broken home. [Laughter.]

Senator **GRASSLEY**. I am missing my son's 16th birthday which we were going to celebrate tonight in Waterloo, Iowa because I consider this so important. I do not know whether my son considers it that important, but I am prepared to stay as well.

Senator **METZENBAUM**. Mr. Spinney, what would be your preference, sir, whether you deliver your entire statement or do you feel that you can achieve the same objective by a shorter version?

Mr. **SPINNEY**. My view is, I cannot get the message across unless I give the entire briefing. That is the view I had in the Pentagon when I was briefing them.

Senator **GORTON**. I agree with that.

Senator **KASSEBAUM**. I think it is very important.

Senator **GORTON**. I would rather reduce the question time.

Chairman **TOWER**. Well, let us go ahead with the full presentation then. First, we will hear from Dr. Chu and then we will let Mr. Spinney make his presentation.

I am sorry we do not have the charts in graphic form in front of us.

Mr. **CHU**. We have some copies that we will pass out.

Senator **GRASSLEY**. Mr. Chairman, were there any arrangements made for slides or charts?

Chairman **TOWER**. Yes, there is.

Senator **GRASSLEY**. So, we will be able to have them.

Chairman **TOWER**. Yes; you can get the whole 9 yards. Let us proceed. Dr. Chu?

STATEMENT OF DAVID S. C. CHU, DIRECTOR, PROGRAM ANALYSIS AND EVALUATION, DEPARTMENT OF DEFENSE

Mr. **CHU**. Thank you, Mr. Chairman. In an effort to beat your 10 a.m. deadline of tomorrow morning, I will keep my summary of my written statement for the record quite brief.

Since it is unusual for me to appear as a witness, to say nothing of a member of our staff, let me begin by summarizing briefly the role of my office in support of the Secretary of Defense.

It is our responsibility, as you noted in your opening statement, to provide a review of the entire defense program and of those issues of particular interest to the Secretary. In carrying out those functions, we are acting, in a sense, as the internal critics.

We have found over the years that it serves that process best if we encourage within the staff a wide diversity of perspectives. That does not mean that I agree with every analysis performed by the staff. Nor does it mean that the Secretary concurs in any particular set of findings.

Let me describe very briefly what was accomplished in this particular study that has become a matter of interest.

What was done here, to put it simply, was to take a series of documents—the congressional data sheets that we furnish the Congress each year on our procurement program—adjust the procurement line for inflation by using a standardized deflator, divide by the number of items requested, and thereby get a simple unit procurement cost measure. This allows us to compare forecasts and actual costs over time.

There is no quarrel about what the historical record of an exercise of this kind demonstrates. In the past, there have been significant difficulties with the accuracy of cost forecasts by the Department. These problems have been noted in a number of studies—both inside and outside the Department. In fact, when Mr. Spinney completed his initial work, I asked our cost analysis staff to review a series of mature systems in depth to help us identify the causes of this phenomenon, and to permit us to inquire whether the steps we were taking to deal with the problem were, in fact, adequate for the purpose.

To summarize very briefly, I think five major factors have led in the past to this kind of cost optimism.

Senator DOMENICI. Mr. Chairman, might I ask a clarifying question?

Chairman TOWER. Yes.

Senator DOMENICI. How long have you been with the Department? I do not think you told us.

Mr. CHU. Sir, I came to the Department in May 1981. Prior to that I served on the Congressional Budget Office staff, and before that I worked at the Rand Corp. in California.

Senator DOMENICI. And how long has Mr. Spinney been with the Defense Department?

Mr. CHU. Mr. Spinney has been with the Department since 1977.

Mr. SPINNEY. March of 1977, sir.

Senator DOMENICI. Thank you, Mr. Chairman.

Mr. CHU. Five major factors led to the situation that characterized these past cost estimates.

First, a failure to fund certain up-front, one-time costs properly—for example, initial spares.

Second, a failure to buy enough support equipment for a program, especially in its early years. This led to catch-up funding in later years. In a unit procurement cost series of this kind, you will therefore see increases relative to planned rates.

Third, a failure to buy items at efficient rates. This is the famous problem of stretch-outs, of taking longer to complete a program.

Fourth, a failure to provide sufficient moneys for weapon systems modifications that were planned in advance, either to take advantage of emerging technology or to meet changes in the threat. Aircraft and ships in particular are often modified several times during their lifetime, which may extend over many years.

Finally, and perhaps most important—not so much in terms of this study but in terms of the kinds of results with which the Congress is concerned—a failure to provide sufficiently realistic forecasts of future inflation.

There is no question about the historical record, Mr. Chairman. What is at issue is what it portends for the future. I think, unfortunately, some of the discussion has not focused enough on the steps that we have taken to try to bring this problem under control. These fall into two categories. First, in our budget submissions—the fiscal 1981 supplemental, the 1982 amendment, the 1983 budget, and the 1984 request, which, of course, you are now considering—we have attempted to fund those things that were not included in the past. Second, we have implemented a series of managerial steps to try to foreclose these sorts of failures in the future. They are four in number.

First, starting with the fiscal 1983 budget, we were given permission by the President to use for major commodities a pricing index separate from the OMB deflator. That index, in fact, is linked to the actual historical record of weapon systems costs as measured by the Department of Commerce.

Second, a directive from the former Deputy Secretary of Defense, Mr. Carlucci, to the service Secretaries stipulating that, in preparing their future programs and budgets, they consider so-called independent cost estimates.

Let me explain very briefly what an independent cost estimate is and the significance of this change, which may sound like a relatively unexciting managerial shift. But it is a very important step, I think, in terms of the way we manage the Department of Defense—to come back to Senator Metzenbaum's concern.

In the past, the budget sent to the Congress largely reflected, in terms of the pricing of major procurement items, the judgments of the program managers, which, unfortunately, were sometimes a bit optimistic.

An independent cost estimate is one prepared by a professional cost analysis staff, separate from the program office. That staff might be located either in the office of the service Secretary or, in the case of my organization, in the Office of the Secretary of Defense.

The third change was to insist that, for certain high-priority and sensitive systems, independent cost estimates be submitted in addition to the service estimates for review at the Secretary of Defense's level. These estimates are used by the Secretary in reaching his final decisions on the budget to be forwarded to the President and then to the Congress.

The fourth managerial change has been to encourage multiyear procurement for major weapon systems. This requires additional money up front, but it gives us both savings from economical buys and greater stability in the defense program. Again, I would stress that program instability and stretch-outs have been primary sources of cost growth in past defense programs. Mr. Carlucci's multiyear procurement initiative was designed explicitly to deal with that problem.

In fiscal year 1983, the Department requested multiyear procurement for 12 major systems. It received permission to proceed with five. In the fiscal 1984 budget, we are requesting permission to proceed with multiyear procurement for eight major systems.

These changes, if they are to succeed, will require the support of the Congress. We recognize that they will take time to take hold and to show the kinds of results you are seeking.

We do see some early signs of progress. The Nunn-McCurdy reporting requirements are one important indicator. This is the mechanism by which the Department notifies the Congress of systems whose unit costs have risen by more than a certain percentage. Under the terms of the amendment, either the Secretary of the appropriate military department or the Secretary of Defense must report the amount of the increase and the steps being taken to deal with it.

Last year at this time, we were compelled to report on 20 such programs. This year, we anticipate there will be approximately eight.

But you need not, I think, take only my review of this record as evidence of the improvement in our procedures. Let me quote from testimony that was given by the director of the Congressional Budget Office to the House Armed Services Committee just a week or two ago:

> There may also be other signs of progress on holding down growth in unit weapons costs. Our analysis of 60 systems in the fiscal 1984 budget shows that 25, or about 40 percent, have unit prices below those anticipated a year ago. Only 13 of 48 systems, or 27 percent, fell into this category in the fiscal year 1983 budget.

Now, I do not wish to suggest that the CBO director gave us a completely clean report card. She also noted some systems that had increased in price. But she pointed out that two-thirds of those programs that experienced cost increases involved systems for which procurement had been stretched out in response to budgetary pressures.

To sum up, Mr. Chairman, we have put into place a series of changes designed, we believe, to bring this problem under control. We solicit your continued support and assistance in making them work. We are confident that, with these kinds of steps, we will succeed in dealing with this longstanding and difficult problem.

That concludes my presentation. I will turn the floor over to Mr. Spinney in accord with the committee's wishes.

[The prepared statement of David S. C. Chu follows:]

PREPARED STATEMENT BY DAVID S. C. CHU, DIRECTOR, PROGRAM ANALYSIS AND EVALUATION, DEPARTMENT OF DEFENSE

We are appearing today, Mr. Chairman, to discuss the cost projection procedures of the Department of Defense.

While it is unusual for me to appear as a witness, it is even more unusual for a staff analyst to do so. The Secretary of Defense has made this exception in an effort to answer the questions that have arisen about our cost projection procedures and a project on this subject undertaken by my office.

I should stress that we encourage in my office a diversity of viewpoints about defense issues, in order to ensure that we have fully reviewed the questions of interest to the Secretary. Thus, at any one time, it is not unusual for our various analysts to hold widely differing opinions. Obviously, I do not necessarily agree with the results of each analysis, nor does the Secretary. But we value the benefits of a healthy internal debate. The debate is much like the one that takes place within any Member's staff, or within any Committee staff, before a major decision is reached.

What is at issue in this particular debate? It is not the historical record. No one questions that, in the past, the Department's planning figures for future costs were often optimistic. Despite the efforts to address this problem in earlier years, it continued to plague the Department in the late 1970's—a period of relatively austere funding for defense.

That this problem existed has been clear for some time. The raw material for analyzing it has long been available to the Congress, in the procurement annexes and in the Congressional data sheets. What we are discussing today is one particular display of those data. There is nothing mysterious or new in the information at hand.

Our review of the data indicated that five factors led to the optimism about future costs:

A failure to budget properly for certain one-time costs (e.g., initial spares);

A failure to procure enough support equipment;

A failure to buy equipment at efficient rates;

A failure to fund planned modification programs properly; and

A failure to provide realistic forecasts of future inflation.

It is the future implication of this historical record that is contentious. Charges have appeared in the press that the future cost record of the Department will be as sad as that of the recent past. But those charges ignore the vigorous steps that this Administration has taken, within the first two years of its tenure, to deal with these problems on a systematic and decisive basis. Unfortunately, as we uncover the problems inherited from the past, and as we attempt to fix them—rather than allowing them to fester and result in future cost overruns—there is a disturbing tendency to interpret the corrections as evidence of further difficulties yet to come. In fact, they reflect a forthright effort to deal decisively with our cost problems. The projection of past cost history into the future assumes that nothing has changed, when significant changes have indeed occurred.

Our fiscal year 1982 budget amendment and fiscal year 1983 budget submission included corrections for many systems. Thus, it is not at all surprising that our requests were higher than the cost forecasts of the late 1970's indicated would be required. Those forecasts were predicated on proper initial funding, which was not always requested or obtained.

But we have gone beyond simply correcting the inherited problems and are putting into place several changes to improve significantly the Department's cost estimates.

Starting with the fiscal year 1983 budget, we instituted a system of special deflators for major commodities procured by DoD that we believe will better reflect actual inflation experience for defense goods.

We have directed that the Service Secretaries consider independent cost estimates in preparing their programs and budgets. No longer will budgets be built—as they were in the past—almost exclusively on estimates provided by program managers.

We have instituted special reviews by my staff of independent cost estimates for those systems that require close attention, and have made necessary budget adjustments where required. In short, we have gone beyond the practice of past Administrations, which frequently prepared but seldom used independent cost estimates. The Secretary has insisted that independent cost estimates be a central element in our program and budget reviews.

We have encouraged multiyear procurement of major, mature systems, requesting additional monies "up front" in order to realize savings in future years and to bring needed stability to the defense program. Last year, we requested multiyear procurement for 12 major systems, and the Congress approved five. For fiscal year 1984, our multiyear procurement request includes eight systems.

These changes need the support of the Congress if they are to succeed. Unfortunately, our fiscal year budget request was not always treated kindly in this regard, with Congress shaving funds for over 200 programs and, in at least one case involving a major system, striking down much of the management reserve we had requested to ensure that the program would be properly funded.

Nonetheless, our fiscal year 1984 budget request continues to emphasize the principles I have outlined. I urge your support of our initiatives, so that we can succeed in putting behind us the problems with which we are all concerned.

While we recognize that this is a long-term process, there are already some encouraging signs that these changes are beginning to take effect. We see fewer systems this spring that will require reporting under the Nunn-McCurdy procedures.

But you need not simply take our review of the record as evidence of improvement. The Congressional Budget Office has concluded: "There may also be other signs of progress on holding down growth in unit weapon costs. Our analysis of 60 systems in the fiscal year 1984 budget shows that 25, or about 40 percent, have unit prices below those anticipated a year ago. Only 13 of 48 systems, or 27 percent, fell into this category in the fiscal year 1983 budget."

While CBO noted that problems remained, it also pointed out that approximately two-thirds of the problem cases involved stretch-outs in response to budget pressures.

In short, Mr. Chairman, we are attempting to deal decisively with a long-entrenched and difficult problem. We believe that the worst of this problem is coming under control—but to keep it under control, we need the support and assistance of the Congress. Deletion of reserves from program requests, reductions in procurement dollars without corresponding reductions in the number of units procured, and slowdowns in the pace of procurement of major items will limit our ability to project costs accurately. If we resist these temptations, I believe that, with the steps we have taken, we can deal effectively with this long-standing problem.

Thank you.

Chairman TOWER. Thank you, Dr. Chu.

Mr. Spinney, before we proceed—just so we understand the data base from which you develop your presentation—it is my understanding that your data points were extracted from the various selected acquisition reports. Is that true?

Mr. SPINNEY. No, sir. The data was selected from the 5-year defense plan.

Chairman TOWER. So, it is not selected from the selected acquisition reports.

Mr. SPINNEY. No, sir.

Chairman TOWER. So, you include none of that data.

Mr. SPINNEY. Well, the data from the 5-year plans would be reflected in the selected acquisition reports, but I did not use the selected acquisition reports as a source document.

Chairman TOWER. Does your analysis include data from the December 1982 selected acquisition report?

Mr. SPINNEY. No, sir.

Chairman TOWER. It does not.

Mr. SPINNEY. No, sir.

Chairman TOWER. So, in other words, you do not have the latest data from the selected acquisition report; is that true?

Mr. SPINNEY. No, sir, I have budget data.

Chairman TOWER. Have either you or Dr. Chu had an opportunity to review the December 1982 SAR? Have you reviewed the December selected acquisition report?

Mr. SPINNEY. No, sir.

Chairman TOWER. Have you, Dr. Chu?

Mr. CHU. I have undertaken a preliminary review of that. The SAR is now being completed, as you know, for submission within the next 2 or 3 weeks to the Congress.

Chairman TOWER. Thank you.

Mr. Spinney, you may proceed.

Mr. SPINNEY. Sir, I have no formal statement. Shall I begin with the briefing?

Chairman TOWER. Fire away. You can set it up any way you want to.

These are technical problems beyond our control. Mr. Spinney's presentation will be delayed for just a few minutes until we get everything set up.

Senator KASTEN. Mr. Chairman, has Mr. Spinney given us any prepared statement?

Chairman TOWER. No, none.

We have Xerox copies of the charts we can pass out. Would that be sufficient for your presentation, Mr. Spinney, if everybody has a chart to refer to in front of them?

Mr. SPINNEY. No, sir. They are only for the first part.

Chairman TOWER. Only the first part.

Mr. SPINNEY. Yes, sir.

Chairman TOWER. All right, just go ahead and set up the screen, then.

[Discussion off the record.]

Chairman TOWER. Come to order, please. I will have to insist on complete order because we should give Mr. Spinney a full opportunity to be heard. So, if we can keep down the noise I would be grateful.

Mr. Spinney.

STATEMENT OF FRANKLIN C. SPINNEY, STAFF ANALYST, PROGRAM ANALYSIS AND EVALUATION, DEPARTMENT OF DEFENSE

Mr. SPINNEY. The title of my briefing is "The Plans/Reality Mismatch." I picked that title because I am trying to describe how well our plans match up with the real world. After all, that is why we do planning.

What I am going to do in this analysis is analyze the 5-year defense plan.

Now, if you think about it, even though we do not usually think in these terms, the 5-year defense plan is "the" authoritative statement of defense policy because it is the only document published by the Pentagon that documents all the hard decisions, the choices we had to make, and puts all those decisions between two covers.

Now, of course, it is just page after page of numbers and it is very difficult to figure out exactly what those numbers mean in a policy context. So, one of the things you do when you try to analyze the 5-year plan is to try to uncover what our policies are in fact—even though our policies may not be what we think they are, the proper analysis of the numbers should reveal how our decision process is operating. That is why I picked the title.

Before going into this, I want to make a few points.

Chairman TOWER. A question of clarification.

Mr. SPINNEY. Yes, sir.

Chairman TOWER. Are you saying that the SAR figures are irrelevant?

Mr. SPINNEY. No, sir, not at all. The SAR figures should reflect what is in the 5-year plan. The SAR's do not drive the 5-year planning process. The SAR's are a reflection of what is in the 5-year plan. Now, there may be slight mismatches because of the timing of decisions and publishing dates.

Chairman TOWER. But you do not include the SAR figures in your report, they are not a part of your calculations; is that right?

Mr. SPINNEY. The data that I am using should be reflected in the SAR in some way, shape or form.

Chairman TOWER. Proceed.

POSITION

Current defense problems result from 30-yr. behavior pattern.
Problems are structural—not caused by political parties or policies.
Defense needs more money.
More money spent the same way could make problems worse.
Failure to face structural problems could destroy fragile consensus for a stronger defense.

Mr. SPINNEY. Before we get into this, I just want to present my personal position on defense problems in general. I do not want this to be misunderstood so I made a viewgraph for it.

First for all, I think a lot of our problems that we are facing today in the American defense are structural in nature. They have a lot to do with the way the decision process is operating. When I say the "decision process," I am including decisions in the Pentagon; decisions by Congress; decisions by the rest of the executive branch, and even in private industry to the extent that industry affects decisions.

I do not think these structural problems really are caused by political parties or policies. I think you see a lot of common, continous behavior from administration to administration.

The second point that I want to make—and I want to stress this—is that I believe defense needs more money. I think we have to pump money into the defense budget.

My primary concern is that if we do not deal with the structrual problems at the same time, then we could end up making some of our problems worse by adding money to the budget. I feel a more significant problem over the long term is, if we do not face these structural problems and try to resolve them, we could hurt the consensus for a strong defense that has been so painstakingly built over the last 6 to 8 years.

Reality—A perspective on actual costs.
Plans—A perspective on desired costs.
Mismatch between plans and reality.
Why?
Recommendation.

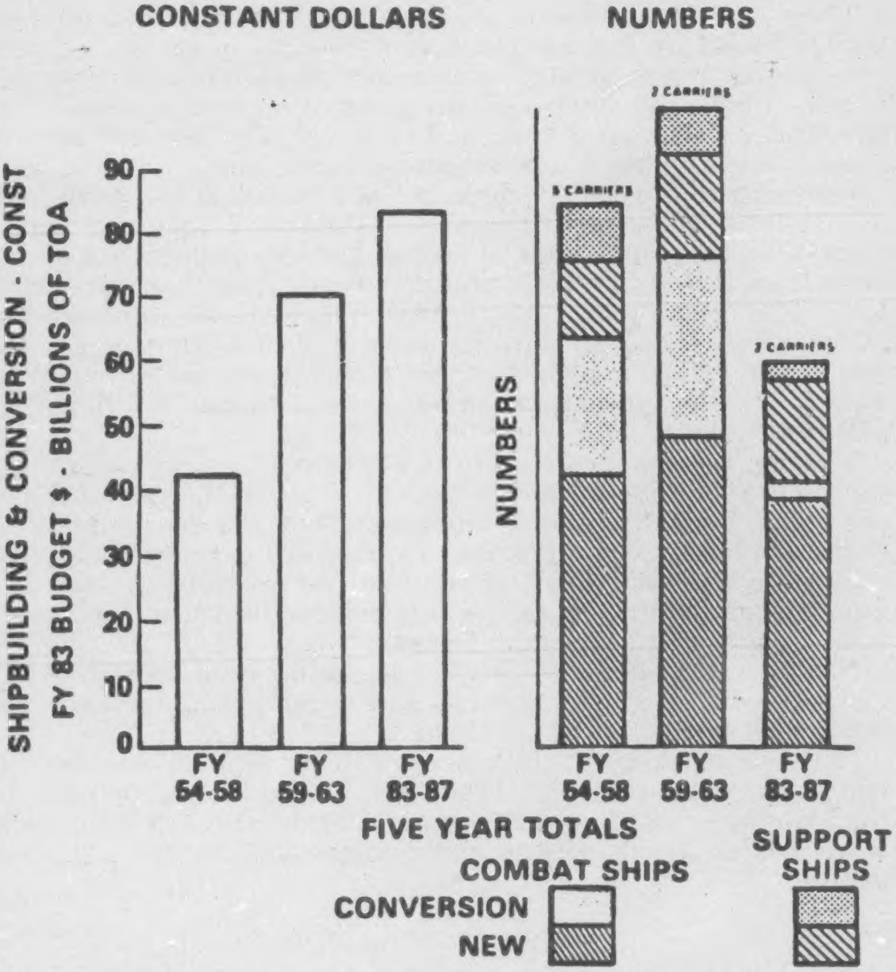
Just a brief outline. First, we are going to examine a brief snapshot of what I call reality. It is basically a snapshot of history and we are going to do it from the perspective of the actual costs of weapons. We are going to make two comparisons: ship and aircraft costs. This story is pretty well understood and this is just to set an overall perspective.

The second part of the briefing is a snapshot of our plans. We are going to look at the fiscal year 1983 through 1987 5-year defense plan. Now, that is the budget that was submitted to Congress 1 year ago last January. We have a new 5-year plan that has just been put together, that is the fiscal year 1984 to 1988 5-year plan. I have not had time to do a complete analysis on that, I have some preliminary data.

Our plans are what you might think of as a perspective on our desired situation, that is a perspective on what we want to have unfold over the next 5 years.

Next, I am going to discuss the mismatch between desires and reality. I will then give an explanation of what I think is occurring, and I am going to conclude with a specific recommendation.

SHIPBUILDING & CONVERSION



So, first let us go back to the past. This chart is the historical chart of the Navy's shipbuilding and conversion account. What I have here are constant dollar comparisons, and I have the numbers of ships authorized during the period. Now, let me explain this.

What I have picked here are two historical 5-year periods, fiscal years 1954 through 1958 and fiscal years 1959 through 1963, and I am going to compare them to the 5-year period envisioned in our 5-year plan, fiscal years 1983 to 1987. And we are going to make the comparison in constant dollars. I have taken out the effects of inflation.

In the fiscal year 1954 to fiscal year 1958 period, we spent roughly $41 billion. I picked this because, this is the post-war period where we stressed carrier modernization. That was the only criteria that I used.

The second period here, 1959 through 1963, was picked because that is the largest 5-year period in the post-war era. It also turned out to be a period in which we stressed submarine modernization, nuclear attack and ballistic missile submarines.

And this is our current 5-year plan.

These are the number of ships we bought in the first reference period. These are the number that we bought in the second reference period; and these are the ones that we plan to buy in the next 5 years. I have the number of carries listed up here separately, it is five in this period, two here, and two here. The reason I separate them is because they are so important to our Navy.

Referring to the coding, these are new warships and conversions of warships. These are new support ships, and these are conversions of support ships. And, of course, the only point that I want to draw from this is that costs are increasing faster than our budgets have. The fiscal year 1983 to 1987 budget is an unprecedented budget. Fiscal year 1959 to fiscal year 1963 is the largest post-World War II 5-year budget—there were larger ones during World War II. This is the largest period in the post-war era that I was able to calculate.

You can see that we plan to buy a smaller number of ships in the fiscal year 1983–87 period than in either of the reference periods. Now, I am not saying anything about the capability of the ships. This may be a far more capable force than either of reference periods, I want to stress that. All we are doing is looking at numbers and we are saying the only point to be drawn from this is, costs are going up faster than budgets.

Now, if you look at the ship categories depicted on this slide, it looks like we are staying even in new warship construction. There is not that much of a change there.

However, it turns out there are a number of mine warfare ships in the current 5-year plan. They are needed, in my opinion, but they are lower cost and they are not considered major combatants. If we look at the changes in major combatants, we see a different picture.

SHIPBUILDING AND CONVERSION

[Long-term dynamics: cost growth, slower modernization, shrinking forces]

	Comparison of fiscal year 1954–1958 to fiscal year 1983–1987 (percent)	Comparison of fiscal year 1959–1963 to fiscal year 1983–1987 (percent)
SCN budget change	+98	+19
Quantify changes:		
Carriers	−60	
Submarines		−57
Cruisers/destroyers/frigates	−34	−18
Amphibious assualt ships	−18	−36
Warship conversions	−89	−92
Support ships	+33	+3
Support ships conversions	−68	−63

In this slide, I am going to tabulate a comparison of the first 5-year period to the 5-year plan—1983 to 1987—and then make a numerical comparison of the second 5-year period to the planned period. Again I want to stress, we are not saying anything about capability.

Senator KASTEN. Are you going to cover that question later, the capability question?

Mr. SPINNEY. No, sir; that really is not part of the subject of this briefing.

Senator KASTEN. So, we are comparing apples and oranges then all the way through?

Mr. SPINNEY. No, sir; I do not think you will feel that way. This is a cost briefing.

Senator KASTEN. We have to understand what we are buying.

Mr. Chairman, excuse me. Go ahead.

Chairman TOWER. By costs, you are talking only of acquisition cost, not operating cost over the lifetime of the system?

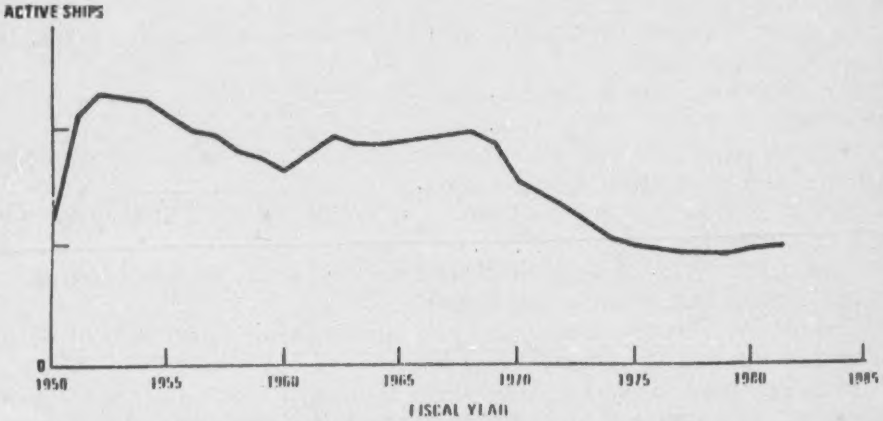
Mr. SPINNEY. Yes, sir; the pattern of lifetime costs is, as I am sure you are aware, much more difficult to determine. As near as I can tell, the pattern of operating cost growth is roughly the same. It might differ in magnitude but it is basically the same pattern.

Anyway, if we compare those two historical reference periods to the current period, this is the first 5-year period, the one that emphasized carriers. This is the second one with the large budget. These are the changes. Here we are talking about a doubling of the shipbuilding budget. Here we are talking about an increase by almost a fifth.

Basically, this chart shows the decline in major combatants, and I did not include the nine warfare ships.

As long as costs are growing faster than budgets you basically have slower rates of modernization and shrinking forces over the long term. And here is what has happened to the Navy since 1951 in terms of numbers of ships.

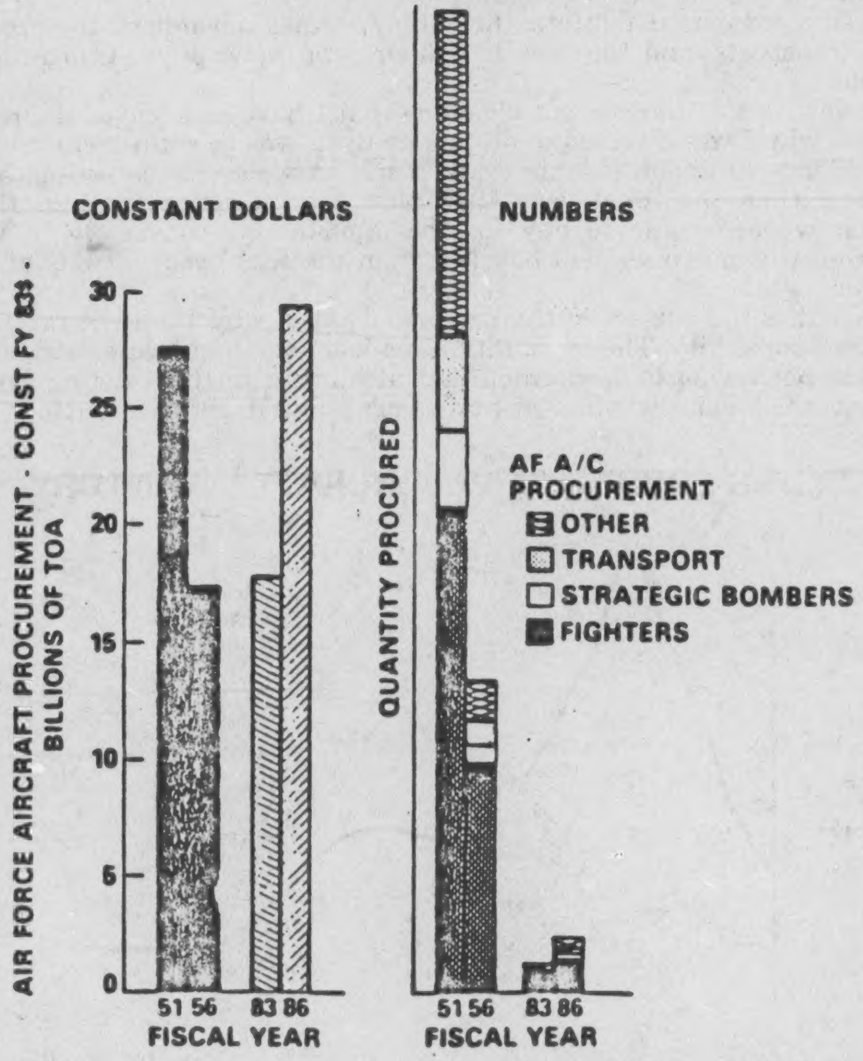
NAVY ACTIVE SHIP INVENTORY



Now, again, I want to stress, we are not talking about capability here, this is just the size of the Navy in terms of ships.

Currently, we are down here somewhere between 450 and 500 major combatants. We are trying, of course, to build to 600.

LONG TERM DYNAMIC: COST GROWTH, SLOWER MODERNIZATION, SHRINKING FORCES



OK, let us look at Air Force aircraft procurement. We will make a slightly different comparison. Here we are going to compare 2 historical years to 2 years in the fiscal year 1983–87 5-year plan. This is fiscal year 1951, fiscal year 1956, fiscal year 1983, and fiscal year 1986 in constant dollars. Now, the reason I picked 1951 and 1956 was because they compare closely in terms of the dollar amounts that we plan to authorize in 1983 and 1986; 1951 is the largest period in the post-war era, that is the largest aircraft procurement account in the Air Force that we had, and it is the only one that even approximates the 1986 level.

Fiscal year 1956 was picked because it was roughly the same as fiscal year 1983.

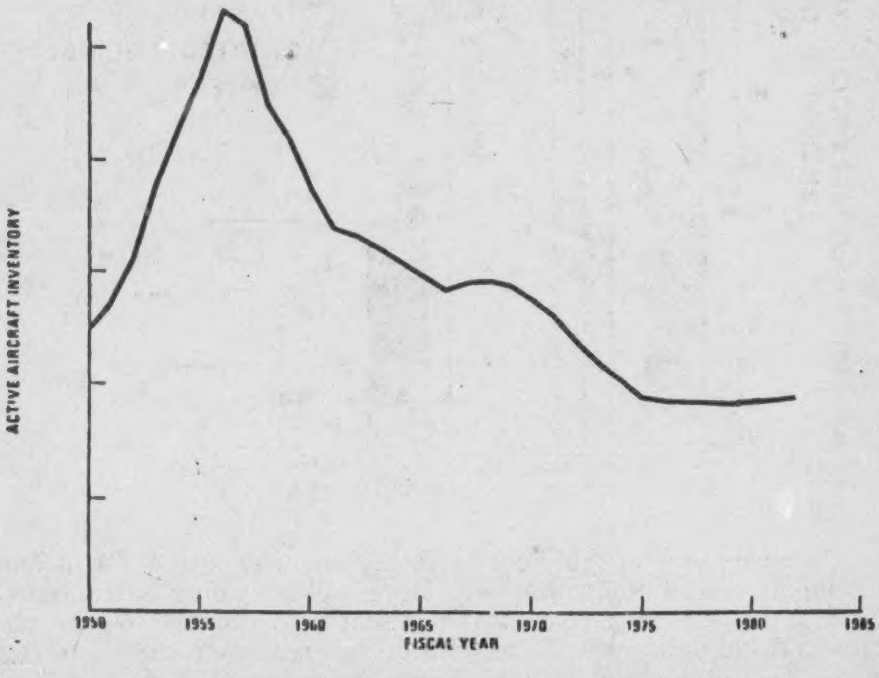
And these are the number of airplanes that we authorized for procurement in 1951, 1956; this is what we have in 1983, and this is what we say we plan to buy in 1986.

This red part is fighters; the yellow, strategic bombers; the green is transports, and the blue is trainers and helicopters, things like that.

Now, one of the current concerns that I have and one of the reasons why I was directed to do this analysis was to get a feel for our tendency to underestimate costs. If in fact we are underestimating costs, then the fiscal year 1986 plan overestimates the quantity that we are going to buy for this amount or, conversely, if we spend this much we will buy less than the fiscal year 1986 quantity.

That is the subject of the briefing. That is why I am not talking about capability. The capability issue is a very important issue, sir, I am not trying to downgrade that at all. But in this briefing I am concerned about whether or not we are going to get this much.

AIR FORCE ACTIVE AIRCRAFT INVENTORY



Of course, the pattern is the same as in the Navy. This is the chart showing the change in the Air Force force structure over the last 30 or so years, that is about 27,000 planes, this is somewhere over 9,000.

Senator GOLDWATER. That is total aircraft?

Mr. SPINNEY. Yes, sir.

Senator **Goldwater**. Counting the Army, the Navy?

Mr. **Spinney**. No, sir; this is Air Force only. These are standard Air Force planes, including helicopters.

This is inventory data that is put together by the Comptroller in a historical budget digest—"Historical Digest," I think they call it.

That is a short snapshot of how we have behaved over the last 30 years.

PLANNED UNIT COSTS

Five-year plans generally project declining costs.
Examples from fiscal year 1983–87 five-year defense plan.

	Fiscal year 1983 unit proc. cost (const. 1983 dollars in millions)	Fiscal year 1987 unit proc. cost (const. 1983 dollars in millions)	Const. dollar charge (percent)
MX	149.6	28.1	−81
F-18	30.6	18.7	−39
M-1	2.34	1.68	−28

Now, we are going to take a short snapshot of our plan. And to introduce this I am going to use this chart to explain how we are going to do it.

We are going to compare the cost projected for 1983 to the cost projected for 1987. Now, we are not going to look at the costs in the intermediate period initially, we are going to do that later on. But initially we are just looking at the first point and the last point.

And for something like a B-1 which is planned for termination in 1986, we are comparing the 1986 costs to the 1983 costs. We are using procurement unit cost here, which is a measure that includes initial spares and it also includes some small distortion caused by advance procurement. I can get into that after the briefing is over, it is insignificant to the analysis.

At any rate, we see here an example of what we are projecting for the future. These are cost declines comparing this cost in 1987 to 1983. The MX is a new system and you should expect to see major costs decline in a new system. It is projected to go down by 81 percent in terms of unit costs.

The F-18, which is a little farther along in maturity, is projected to go down by 39 percent, and the M-1 tank is projected to go down by 28 percent. So the only thing I am trying to do here is to show that our plans have a slight contrast with history. Our history has been rising costs but our plans are projecting declining costs.

PROCUREMENT UNIT COST CHANGES PROJECTED IN FY 83-87 FYDP

Program	Service	%Chg-Const$	Program	Service	%Chg-Const$	Program	Service	%Chg-Const$
M-X	AF	-81	MC-130	AF	-32	TOW	A	-9
AMRAAM	AF	-81	Bushmaster	A	-32	Destroyer Tender	N	-8
Laser Maverick	N	-81	EA-6B	A	-31	Chaparral	A	-8
B-1	AF	-78	Cur Dist A/C	AF	-31	Fld Art Spt Veh	A	-8
C-5N	AF	-78	EH-60	A	-31	RIM-67A/B	N	-7
AGM-88	AF	-77	CH-53E	N	-30	UH-60	A	-7
AGM-88	N	-75	TAO	N	-30	F-14	N	-6
GSRS	A	-71	SSN-688	N	-29	FFG-7	N	-6
AIM-54	N	-69	AOE	N	-29	F-5	AF	-6
C-2	N	-69	VTX	N	-28	MK-48 Torpedo	N	-3
AV-8B	N	-65	MK-46 Torpedo	N	-28	MK-75 Gun Mt	N	-3
IIR Maverick	AF	-64	M-1	N	-28	CG-47	N	-3
CBU-89	AF	-62	F-15	AF	-26	C-9	N	0
CBU-87	AF	-61	AIM-9	N	-26	U-12	N	0
TR-1	AF	-59	AIM-7	AF	-25	20mm Combat	AF	0
AH-64	A	-59	BB React	N	-23	30mm API	AF	0
IIR Maverick	N	-58	AE	N	-23	Rockeye	AF	0
Patriot	A	-57	RIM-66B/E	N	-22	MK-84 G.P. Bomb	AF	0
SH-60B	N	-53	E-2C	N	-21	F-16	AF	+1
Hellfire	A	-51	HH-60D	AF	-21	M-88A1	A	+1
DIVAD	A	-51	Adv L.W. Torpedo	N	-20	M-2/3	A	+2
KC-10	AF	-49	Salvage Ship	N	-20	MK-60 Captor	N	+3
Hellfire	N	-45	Bigeye	AF	-20	SH-2F	N	+4
RIM-66C	N	-45	Hospital Ship	N	-19	Airfld Att Wpn	AF	+4
Stinger	A	-43	AH-1	N	-17	E-3	AF	+7
AIM-7	N	-42	AGM-84	N	-17	ALCM	AF	+7
CBU-90	AF	-40	C-140 Repl A/C	AF	-17	30mm Tng	AF	+8
F-18	N	-39	SH-60 CV	N	-16	NGT	AF	+9
BGM-109	N	-39	T-34C	N	-16	C-12	A	+9
LHD-1	N	-38	MCM	N	-14	GLCM	AF	+15
Laser Bomb Kit	AF	-38	DD-963	N	-13	MK-15-CIWS	N	+17
ECX	N	-37	DDG-51	N	-13	Trident SSBN	N	+18
MSH-1	N	-37	AGOS Swath S.	N	-13	RC-12	A	+21
LSD-41	N	-36	P-3C	N	-12	30mm HEI	AF	+22
A-6E	N	-35	Mob Prot Gun-Can	A	-11	GBU-15	AF	+22
AMRAAM	N	-33	Lt Arm Sqd Car	A	-10	UGM-96	N	+36
Pershing	A	-33	Mob Prot Gun-Rec	A	-10	AIM-9	AF	+57

Now, what I have here is a table of 111 programs arranged in rank order by the magnitude of the cost declines, starting with the MX up here at minus 81 percent and going down to a plus 57 percent increase.

You can see that these are most of your major systems in the Defense Department. The systems that I did not look at were those procurements in the other procurement account, things like satellites, ammunition and of course the Black programs.

I also did not look at the ammunition accounts in the Army and Navy. I have some ammunition programs in the Air Force. The only reason we did not look at those—there were other people helping by the way—the only reason we did not look at those accounts was workload.

These are most of your major systems in the aircraft accounts of the three services; the missile accounts of the three services; the weapons and tracked vehicle accounts of the three services, and the shipbuilding account.

Now, on the next slide is, I am going to summarize this slide. We are going to break these projected declining down into arbitrary ranges, just to make it a little easier to grapple with. We will set arbitrary categories: those programs with greater than 65-percent unit cost declines, those between 30 and 64 which would be from here and up to there, and so forth. That is what this table shows.

DYNAMICS OF INDIVIDUAL PROCUREMENT PLANS

[Fiscal year 1983–87 President's budget, February 1982]

Programed unit cost change [1] (percent change-const. dollars)	Procurement programs [2]		Fiscal year 1983–87 program cost (const. 1983, dollars in billions)	
	Number	Percent	Amount	Percent
Greater than 65 percent reduction	11	(10)	$49.4	(21)
30 percent to 64 percent reduction	33	(30)	60.1	(25)
1 percent to 29 percent reduction	42	(38)	86.8	(37)
0 percent to 59 percent increase	25	(22)	39.3	(17)
Total	111	(100)	235.6	(100)

[1] Constant dollar ratio of fiscal year 1987 cost of fiscal year 1983 cost or last year cost to 1st year cost.

[2] Does not include other, USMC, and Defense Agency Procurement; systems planned in 1 year only are also excluded, for example, A–10, CVN.

Future cost declines dominate procurement planning: 77 percent of Programs in Sample; 83 percent of Program Cost in Sample.

Remember, we are still using the 1983 to 1987 5-year plan. That plan is 1 year old at this point. I have grouped the projected declines according to those categories, they are given here.

There are 11 programs projected to have greater than 65 percent unit cost reduction over the next 5 years. And this is very important, they represent 21 percent of the resources in this sample. These are new programs and they are also big programs. The total resource base that we are looking at over the 5-year period, summing procurement costs up, is $236 billion.

We have 11 programs representing 10 percent of the data base, absorbing 21 percent of the resources, and the rest of data are basically broken out to accommodate that shift.

Now remember, this is just a snapshot. We have just looked at the 1st year and the last year. We have not yet said anything about what is happening in between these years. When you look at plans from this perspective, future cost declines clearly dominate our plans. To the extent that the sample represents our plans, we are talking about 77 percent of the programs in the sample representing 83 percent of the cost.

RATIONALE FOR THE DECLINING COST ASSUMPTION

Amortization of Initial Costs.
Shipbuilding.
Learning Curves.

Now, why do we think these costs are going to go down? We do not just arbitrarily make them go down. There are basically three reasons, and I want to explain each one of these. These are the three reasons.

The first one is a name that I made up; it is called amortization of initial costs. The second one is a technical reason that applies to the shipbuilding account, and the third one is the learning curve which is probably the most pervasive rationale.

AMORTIZATION OF INITIAL COSTS

Relates to New Programs.
High Start-Up Costs (e.g. tooling, plant construction) Combined With Low (But Increasing) Production Rates.
As Production Increases Unit Costs Will Decline.

Crucial Question: How Much?

Risk: Overestimate of Decline Can Lead to Substantial Underfunding Because Bulk of Procurement is Projected At Low Unit Costs.

Hypothetical Example of Risk: B-1.

Planned Unit Cost Decline=78 percent and fiscal year 1983-86 Total Procurement Cost=$19.9B (83$).

Suppose Actual Decline=60 percent then Total Procurement Cost=$25.6B (83$).

Key Point: Overestimate of Unit Cost Decline By 18 Percent Increases Total Cost By 29 Percent.

Let us talk about the first one, amortization of initial costs. Basically, we are talking about those costs that are associated with new procurements. When you start up a new program, you have a lot of one-time costs—you may have to build a factory; you may have to buy certain plants. Also, in the beginning you have zero production, then you have very low production that is building up very gradually. So, you are spreading your overhead over small units at first and actually the unit cost is going to be way up there. And of course, as production increases, the costs are going to go down because overhead is spread over more units.

The crucial issue with these programs is not whether costs are going to go down, but how much they are going to go down. If we overestimate the decline, we run into a serious problem of not having enough money in the out-years to accommodate procurement because the bulk of the weapons are planned to be procured at the low unit costs in the out-year.

Let me just give you a hypothetical example. This is an example that I have made up. I am going to examine what would happen if a change occurred in the cost decline of the B-1. The B-1 has a projected cost decline of 78 percent between 1983 and 1986 in this budget. And the total procurement cost between 1983 and 1986 is planned to be about $19.9 billion in constant 1983 dollars. That is not the total cost of the program because we spent some money in 1982. That is not included here.

Now, let us suppose for sake of illustration that the actual decline of the B-1 turns out to be 60 percent. In other words, if the plane costs $100 in 1983, in 1986 it costs $40. And let us also suppose—just to make the example easy to understand—that that 60-percent decline occurs in 1985 and the cost is constant in 1985 and 1986. And that the costs in 1983 and 1984 are the same costs that are projected in the 5-year plan.

So, the only change that I am introducing is a slightly different decline. Well, in this example, the actual cost of the program in constant dollars would go up to about $25.6 billion in constant 1983 dollars. The key point I am trying to make here is, an overestimate by 18 percent has increased the total cost of the program under these conditions—which are purely hypothetical—by 29 percent.

And that is the kind of problem we have when projecting the amortization of initial costs. There is a risk of overestimating the decline, particularly when you have to remember the difficulty associated with getting a program started. You are fighting a tough bureaucratic battle and you may just err on the side of optimism.

Another thing is, when you are dealing with design of any complex equipment you never know what problem is going to crop up. So, you tend to be optimistic by nature.

SHIPBUILDING

- "Weapon System Cost" of Ship is Generally Level Funded in Five Year Plan

However

- Five Year Plan Incrementally Funds "Escalation on Prior Year Programs" and "Cost Growth"
  - To Cover Unplanned Effects of Inflation and Cost on Ships Initiated in Prior Years
  - Budgeted as Bills are Expected to Come Up for Payment in Budget Year Only

Result

Apparent Decline in Unit "Procurement Cost" Between First and Second Years of Five Year Plan

The shipbuilding rationale relates to declines in shipbuilding costs. This rationale is a technical rationale and has to do with our procedures for budgeting in the Pentagon.

Procurement cost which is what we are comparing, includes the weapon system cost which is the dominant portion of the cost, and it includes the effects of advanced procurement, that is, procurement money that is appropriated in earlier years, in order to get the program started or keep it running smoothly.

Now, in the case of ships that also includes outfitting and post delivery costs. These are minor categories. It has to do with getting ships ready for sea once they are built.

And we have two other categories.

Chairman TOWER. Mr. Spinney, what does the term "excalation" mean?

Mr. SPINNEY. Escalation, sorry, sir; bad spelling.

[Laughter.]

Mr. SPINNEY. I am an engineer, not an English major.

[Laughter.]

Mr. SPINNEY. I found one earlier, though.

Senator LEVIN. Mr. Spinney, it is right on our charts in front of us. So, you are doing better than you think.

Mr. SPINNEY. Thank you, sir.

[Laughter.]

Mr. SPINNEY. There is another one here, too. But I found that one.

Anyway, there are two other categories in the procurement cost called escalation on prior year programs and cost growth. Those two categories are unique to the shipbuilding account and they basically have to do with the problems of having procurement outlays over very long periods of time. When you build a ship it may take 8 years to produce and if you underestimate the cost, the cost growth may accumulate gradually over time. You may not even be aware of it for some time.

And of course, as Dr. Chu mentioned in his statement, we have the problem of not being able to forecast inflation, and that is particularly damaging to the shipbuilding account because when you are building something over an 8-year period and any error in the inflation forecast has a long-term cumulative effect.

As a result, these categories can become significant. They have been significant in the past. They tend to go up and down in magnitude over time. They are basically designed to cover the unplanned effects of inflation and cost growth on programs initiated in prior years.

However, we do not program these costs for 5 years in the 5-year plan. We program them incrementally, and that is a term that means we program them for the budget year only. And that is by joint agreement between OSD and the Navy. We basically assume—in an abstract sense—that those problems go away after the first year.

Now, I am not sure exactly why that is done. It is my understanding that we can estimate, at least in a gross way, some of the future requirements associated with these costs. But it is just a convention. So, you have an apparent cost decline between 1983 and 1984 on a large number of our ships.

However, the weapon system cost, which is the bulk of shipbuilding cost, is generally level funded—except when you are starting a new class, then there may be an initial decline.

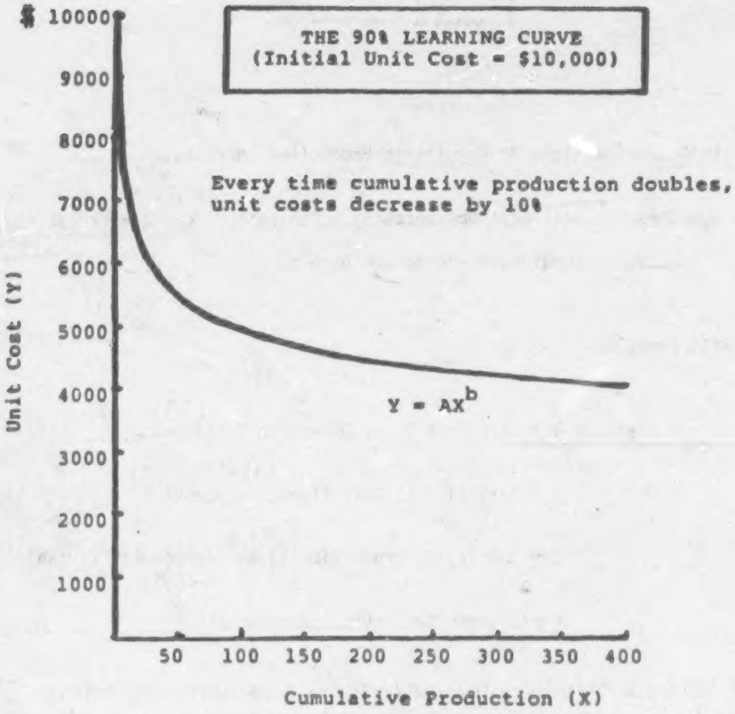
LEARNING CURVES

- Theory: Unit Cost Declines As Cumulative Production Increases
- Specific Hypothesis: Unit Cost Decreases By A Constant Percentage Everytime Cumulative Production Doubles
- Mathematical Formula: $Y = AX^b$

where:
Y = Unit Cost (i.e. Dependent Variable)
A = Initial Unit Cost (i.e., Constant)
X = Cumulative Production (i.e. Independent Variable)
b = Exponet Specifying Learning Effect

The third rationale for declining costs is the learning curve. The theory behind the learning is that costs are going to go down as cumulative production increases. The specific hypothesis is that unit cost will decrease by a constant percentage every time cumulative production doubles. There is even a mathematical formula to support that hypothesis and I have given that here.

Example



Implications

Taking Formula Literally:

1. Cost Decline is Independent of Production Rate
2. Unit Cost Declines Forever, Albeit at a Decreasing Rate

But We Know That:

Production Rate Does Matter and Costs Don't Decline Forever

Therefore:

We Can Not take The Formula Literally

To give you a feel for what we are talking about, I have constructed a hypothetical example of what is known as a 90-percent learning curve.

This is a 90-percent learning curve. This means that, every time cumulative production doubles, unit cost goes down by 10 percent; 90 percent is the convention used to name this particular curve. And on this slide I have plotted a 90-percent learning curve for a hypothetical weapon that has an initial cost of $10,000.

Now, cumulative production is on the *x* axis here, and unit cost is on the *y* axis. And the way you read this is: the first unit costs $10,000; the second unit goes down by 10 percent. That means it costs $1,000 less or $9,000.

Now, the fourth one costs 10 percent less than $9,000, or $8,100. You can see 50 is somewhere around $5,000 or so. If you go out to 100, which is a doubling, you stand at around $4,500. You go out to 200, which is doubling, and it is down closer to $4,000.

That is the way the formula works. Now, there are a couple of things that are implied by this formula. Taken literally—and mathematics have to be taken literally at least initially—this formula says the unit cost decline is independent of production rate. It does not matter whether we produce the first 400 of these weapons in 1 month, 1 year, 10 years, or 100 years; this formula would predict these same cost declines.

This formula also says costs are going to go down forever, albeit, at a decreasing rate. In mathematics, this formula is asymptotic to zero at infinity. So, the formula is an approximation.

That is the key point I want to bring out about learning curves. They are basically approximations that have evolved over the years. They are fitted to historical production data, using statistical techniques. And the theory is essentially a statistical abstraction.

WHY DO WE BELIEVE "LEARNING" WILL OCCUR?

1. (Dominant Factor) Labor Learning - improved productivity through job familiarization
2. Management Learning - e.g. improved productivity through better shop organization engineering liaison, parts/supply systems, and general management
3. Improved Capital Productivity - e.g. tool coordination, more easily produced subassemblies, more efficient tools, substitution of cost/forged pieces for machine parts, etc.

Necessary Condition: Stable Production Environment

- A Fixed Design
- Stable Manpower
- Stable (or at Least Predictable) Flows of Parts and Raw Materials
- Stable (or at Least Predictable) Budgets and Production Rates

Now, I do not want to imply that learning does not occur. I just want to say that you cannot take the formula literally. There are reasons to expect that costs will go down, at least for a while. I do not think they are ever going to go down forever. Basically the reasons relate to standard economic theory—they relate to improved productivity of labor and capital. The aircraft industry has been the primary source of the development of the learning curve theory—it has been expanded to other areas. The dominant factor has always been felt to be labor learning.

Basically, we are talking about an improved labor productivity, or increased output per man-hour. Management learning relates to management getting more efficient as we get into production. This is another form of labor learning. And then of course we have increased capital productivity.

Senator METZENBAUM. Mr. Spinney, can you tell us where the 10-percent figure comes from? Why is it not 5 percent or 15?

Mr. SPINNEY. That is just an example. We use all sorts of different numbers for this. That is not meant to be cute, it depends on the industry and type of equipment being produced. I just did 10 percent because 10 percent is a nice, easy number to keep in mind.

Senator METZENBAUM. Who determines that?

Mr. SPINNEY. The curve would be determined statistically, using historical production data. In other words, we would go back and compile some production data on fighter aircraft, say, for example. We use a statistical technique known as least squares regression analysis. We fit a curve to the data. When we come up with a curve that fits, it may turn out to be 10 percent; it may turn out to be 20 percent; it may turn out to be 2 percent.

And then we try to generalize from that specific type of analysis to, say, a new system or new groups of systems. It depends on the specific application. It is not arbitrary in the sense that you just come in and say we are going to have a 10-percent learning curve. I did not mean to imply that at all.

One of the problems that you have with doing such statistical analysis is, the data has to behave in a very precise way for the statistics to be valid. And in my view, there are some problems with using this data. I do not think the data behaves correctly in the statistical sense. As a result, it is difficult to have what is known as statistical confidence in the analysis. That is a technical term.

If you do this kind of analysis, there are several assumptions that are made about the data, known as a priori assumption that are made before you do the analysis. The data must behave in a certain way. These assumptions are very precise in mathematics, and the whole theory of statistical inference is based on the precision of those assumptions. If the underlying data does not fit those assumptions then you have a problem with confidence in the statistical analysis. I think that is one of the big problems that a lot of econometricians are facing these days. The data should behave in a way that suits the model. That is a personal opinion, I am sure they might disagree with that.

Anyway, this is just a hypothetical example to give you a feel for what we mean by learning curve.

Why do we think learning will occur? As I said, improved use of capital and labor. However, to have the improvement in the capital and labor productivity, certain conditions have to be met in the production environment. First of all, you have to have a fixed design. If you are constantly changing the design, you have to go back and relearn. You may have to retool; you may have to get different types of employees. You have to have a stable work force. This is probably the least troubling of the four assumptions here. You have to have stable, or at the very least, predictable flows of parts and raw materials, and you have to have stable, or at the very least, predictable budgets and production rates so management can learn, so they can do things more efficiently.

If you think about it, if there is one thing that does not characterize the defense planning environment it is this kind of stability. Designs are continually changing; manpower is reasonably stable, at least in some of our industries; flows of parts and raw materials are constantly being interrupted, and budgets and production rates gyrate wildly from year to year.

So, the necessary conditions for learning may not be valid. Now, I am not saying that we should never use learning curves. The key point I am trying to make is, that rationale underpinning on plans has got to relate to the world as it is, not as we would like it to be.

It may be that the learning curve is useful in a contract negotiation where we are trying to decide who should build something or when we are dealing with a hypothetical situation. But when we are putting together our plans, those plans have to reflect the world as it is. If those conditions are not met you should use a different rationale.

Dominant Dynamics of Procurement: PLANS and REALITY

- REALITY
  - Unit Cost Growth Faster Than Budget Growth
  - Result: Slower Modernization and Shrinking Forces
- PLANS - i.e. Desired Reality
  - Two Key Assumptions:
    1. Declining Future Costs
    2. Unprecedented Future Budget Growth--i.e. Procurement Bow Wave

Permit

- Faster Modernization and Growing Forces--In The Uncertain Future

However

- Declining Future Costs and Procurement Bow-Wave Have Dominated Planning For Years

Illustration: The Case of Tactical Fighters

A History of the Mismatch Between Plans and Reality

We can now compare plans with reality. In the past, cost growth has been faster than budget growth, and the net result has been slower rates of modernization and shrinking forces. When we look at our plans, we see that we have unprecedented levels of budgets projected but the smaller quantities reveal that the cost growth is still faster than planned budget growth.

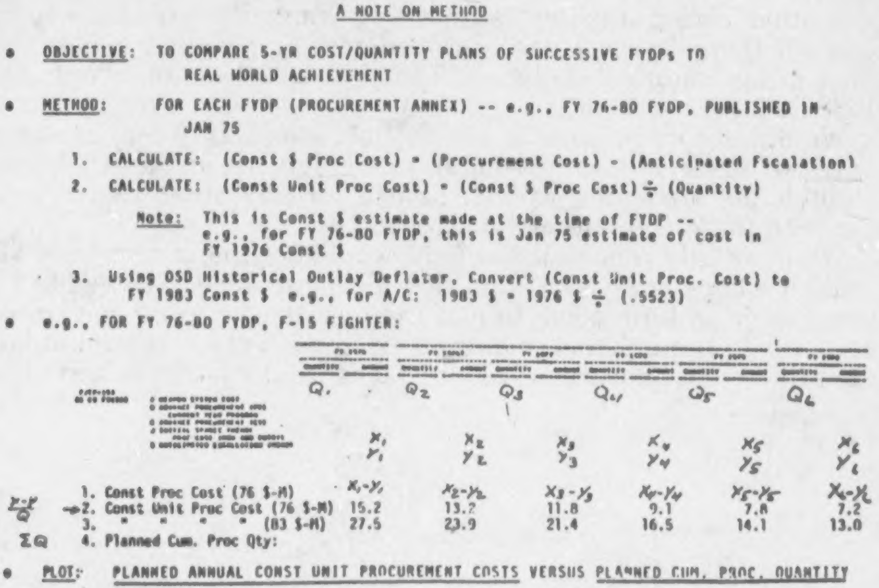
When we look at our plans, which can be thought of as desired reality, we see two key assumptions. First of all, we have declining unit costs over the 5-year period; and second, we have unprecedented future budget growth. Now, in the Pentagon this procurement budget growth is known as the procurement "bow wave."

The procurement bow wave has existed in the Pentagon since I have been there. I have been there, with the exception of about a year and a half sabatical, since 1972. We have always had a procurement bow wave since 1972 although it has been at different growth rates. This is the way we normally do planning.

If you look at the overall budget growth in the 1983-87 budget plan, we are programing roughly 7-percent between 1983 and 1987. If you look at the growth of the procurement budget, it is roughly 13 percent. If you look at the growth in the operating account—that is O&M of personnel—somewhere around 5-percent. I am not exactly sure of those numbers but that is the rough pattern.

Now, these two key assumptions enable us to project a growth strategy in our 5-year modernization plans, basically faster rates of modernization and growing forces in the uncertain future over the next 5-years. That is what we want to have. There is a problem, though.

These two key assumptions have characterized our plans for years. They have characterized our plans while the opposite was taking place. That is what I am going to describe and to illustrate in the next part of the briefing.



A NOTE ON METHOD

- OBJECTIVE: TO COMPARE 5-YR COST/QUANTITY PLANS OF SUCCESSIVE FYDPs TO REAL WORLD ACHIEVEMENT
- METHOD: FOR EACH FYDP (PROCUREMENT ANNEX) -- e.g., FY 76-80 FYDP, PUBLISHED IN JAN 75
  1. CALCULATE: (Const $ Proc Cost) = (Procurement Cost) - (Anticipated Escalation)
  2. CALCULATE: (Const Unit Proc Cost) = (Const $ Proc Cost) ÷ (Quantity)

     Note: This is Const $ estimate made at the time of FYDP -- e.g., for FY 76-80 FYDP, this is Jan 75 estimate of cost in FY 1976 Const $
  3. Using OSD Historical Outlay Deflator, Convert (Const Unit Proc. Cost) to FY 1983 Const $ e.g., for A/C: 1983 $ = 1976 $ ÷ (.5523)
- e.g., FOR FY 76-80 FYDP, F-15 FIGHTER:

		Q_1	Q_2	Q_3	Q_4	Q_5	Q_6
		x_1 y_1	x_2 y_2	x_3 y_3	x_4 y_4	x_5 y_5	x_6 y_6
	1. Const Proc Cost (76 $-M)	x_1-y_1	x_2-y_2	x_3-y_3	x_4-y_4	y_5-y_5	x_6-y_6
$\frac{x-y}{Q}$	→2. Const Unit Proc Cost (76 $-M)	15.2	13.2	11.8	9.1	7.8	7.2
	3. " " " " (83 $-M)	27.5	23.9	21.4	16.5	14.1	13.0
ΣQ	4. Planned Cum. Proc Qty:						

- PLOT: PLANNED ANNUAL CONST UNIT PROCUREMENT COSTS VERSUS PLANNED CUM. PROC. QUANTITY

Now the next slide is just a note on method. It describes how we are going to do the analysis, it is technical in that sense.

What I have done here is, I have xeroxed the line item from the F-15 budget, the 5-year procurement plan put together in January 1975. Back then, we projected the F-15's cost from 1976 through 1980.

Now, we are going to use official budget data to construct an analog learning curve.

Basically, we are going to use the procurement unit cost. The reason we are going to use the procurement unit cost is because that is the number to which we attach the estimate of the effect of future inflation.

This line item down here is anticipated escalation, this line above it is procurement cost. Now, that forces us to use procurement cost if we want to take out the effects of escalation. In this analysis, I am going to subtract out the original inflation forecasts as they were made at that time.

This is our estimate of the effect of inflation on the effect of inflation on the F-15 program that was made in January—the "y's" here—that was made in January of 1975. We are going to subtract that out right away and we are going to do the analysis in constant dollars. Now, when we subtract *y* from *x*, we end up with the constant dollar procurement cost for the F-15 in each one of these years. But that is in 1976 dollars.

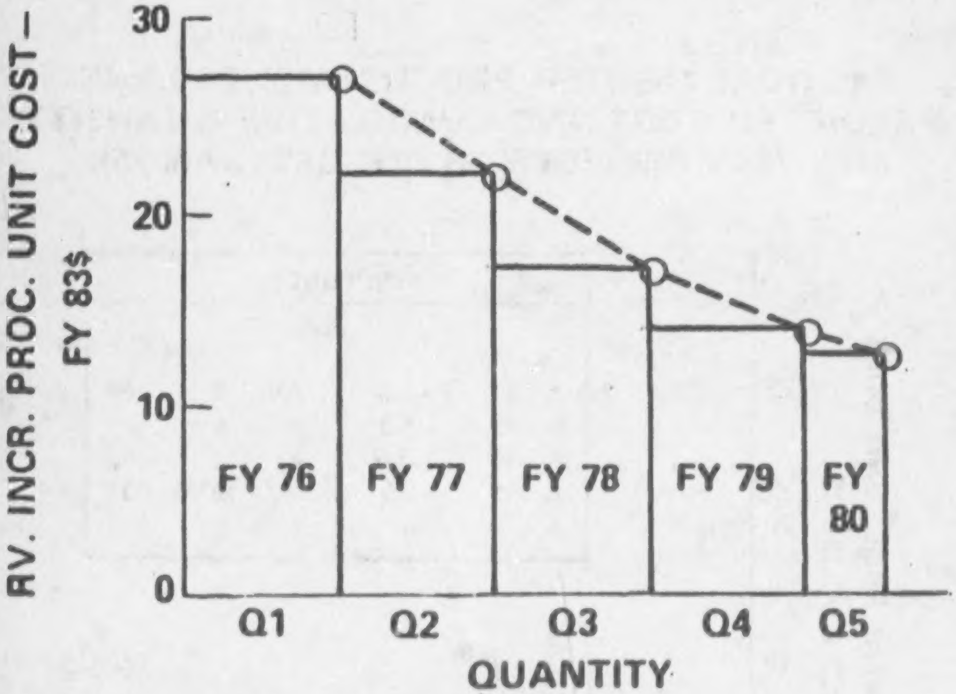
Then we are going to divide it by the quantity that is programed for procurement in each year. That gives us this number here which goes from 15.2 in 1976 down to 7.2 in 1980. That is our 1976 constant dollar estimate for the F-15 procurement unit costs over those years.

Then I am going to convert that to 1983 dollars. Now, using the historical deflator you can convert any constant-dollar estimate to any other constant-dollar estimate we want. We are going to convert all these 5-year plans to a common "apples and apples" base line, using historical deflators. That is what these numbers are in 1983 dollars.

We did not know what a 1983 dollar was in 1975 but in essence, once we made a constant-dollar prediction, we made a 1983 constant-dollar prediction as well as one for any other year. We can put it in to 1776 dollars if we want to.

What we said was, that the F-15 would decline in cost from $27.5 million a copy down to $13 million a copy in 1980. Now, what I am going to do is, I am going to plot these costs which you can think of as average annual incremental unit costs, versus the cumulative quantity on the horizontal axis. That is what the next chart shows.

F-15 COST PREDICTIONS FY 76-80 FYDP, JAN. 1975



Now, the most accurate depiction of these calculations is a bargraph like this. This is the first quantity bought in 1976, the second quantity in 1977, 1978, 1979, and 1980. That is an accurate depiction of the data calculated in the previous slide .

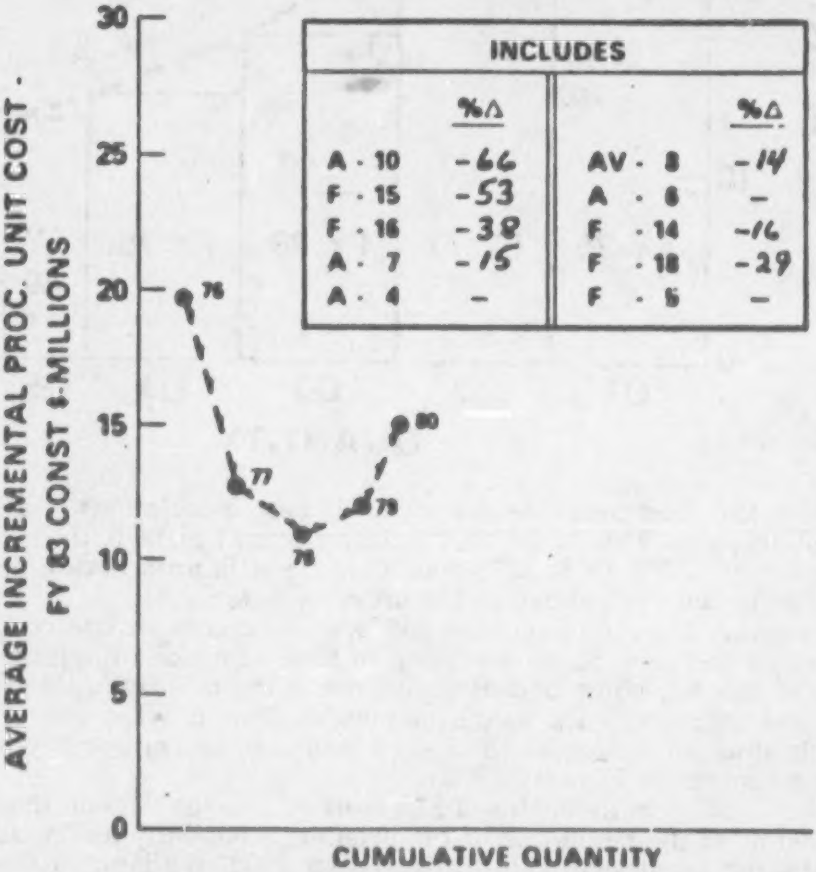
However, I want to put the different estimates of the cost declines on one side. So we are going to have to make an approximation of this bar chart depiction. We are going to draw a line from the end corner of each year's increment. This is what you might think of as an analog to the F-15's projected learning curve as it was estimated in January 1975.

This is $27.5 million, this is $13 million, and the decline that we looked at at the beginning of the briefing is basically analogous to comparing fiscal year 1976 to fiscal year 1980. We ignored the intermediate years.

Now, it would not be fair to try to draw a general conclusion from an analysis of the F-15. So, rather than do it for a single plane, in this part of the briefing what I am going to do is construct a similar type curve for what you might think of as the average fighter that we bought in the 1970's.

For a sample of fighters that I am going to show you in the next slide, I am going to sum up the constant-dollar procurement costs and the quantities, and then I am going to divide that quantity into the constant-dollar procurement costs and proceed with the analysis like we did for the F-15. In effect, we have calculated a weighted average unit procurement cost for a sample of fighters and this will be plotted against the cumulative quantity of fighters procured.

TACTICAL FIGHTER PROCUREMENT PLANS: PREDICTED COST AND CUMULATIVE QUANTITY (FY 76-80 PRESIDENT'S BUDGET, JAN 75)



INCLUDES			
	%Δ		%Δ
A - 10	-66	AV - 8	-14
F - 15	-53	A - 6	–
F - 16	-38	F - 14	-16
A - 7	-15	F - 18	-29
A - 4	–	F - 5	–

The 1976 program is depicted on this slide. This is the 5 year plan that we made for these tactical fighters between 1976 and 1980. We made this projection in January of 1975. The box contains the first-to-last year changes which analogous to the table depicted in slide 9. For example, in the F-15 we have a minus 53-percent change in unit cost projected. That is the difference between the fiscal year 1976 and the fiscal year 1980 cost.

When you see an item that has no number in the box, it means in that particular 5-year plan the fighter may have only been programed for 1 year. So, you could not make a first-to-last year comparison. Or it may be a plane that we ended up buying because Congress appropriated it when we did not ask for it.

Now, you see the projected cost declines up through 1978 and then you see increases in 1979 and 1980. That does not mean we were programing increases in cost in 1979 or 1980. A change in the mix of planes making up this sample was planned to occur in 1979. It turns out that in this particular sample the A-10 was programed to go out of procurement in this period; the F-15 was nearing the end of its procurement, it was programed to have very low cost at this period. However, the AV-8 and F-18 were planned to come in in the later part of this period.

So, we have the F-15 going down to low quantities and low cost; the A-10 dropping out, the F-16 also down there at relatively low cost; and, we have the addition of two new planes which have their high startup costs. The costs for those planes in those years were very high because they were just getting started.

So, the increased proportion of expensive fighters increased the average unit cost and that caused the curve to hook up in fiscal year 1979 and fiscal year 1980. It is not a change in the basic declining cost assumption, it is a sustention effect.

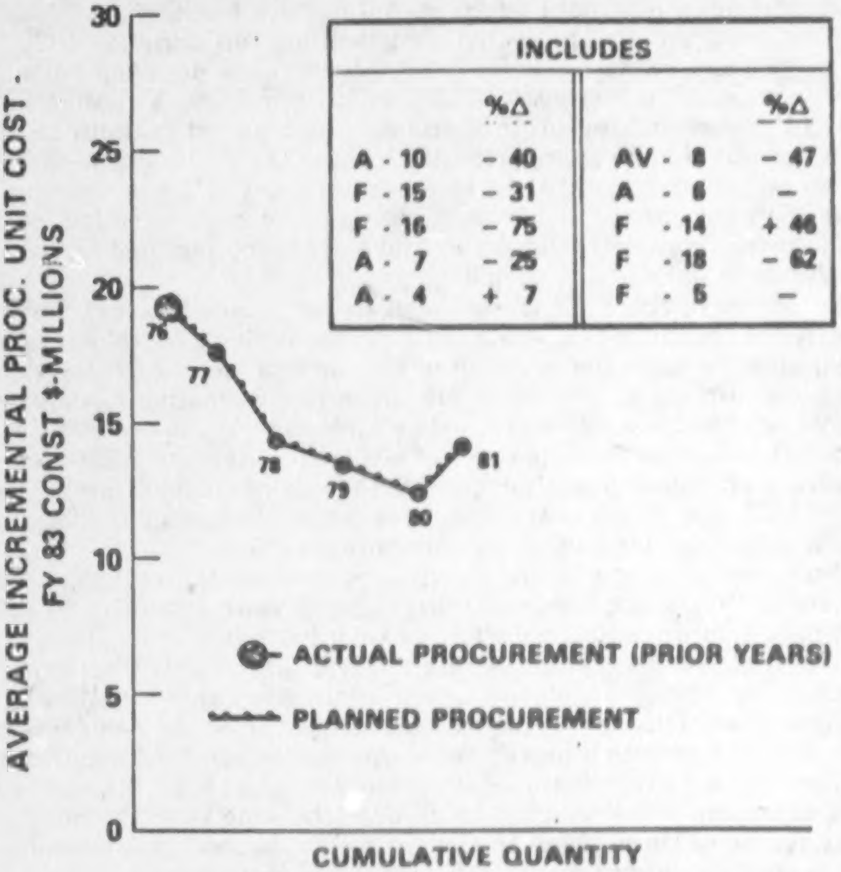
Now, we are going to march through the next eight 5-year plans. In doing this, what I want to do is direct your attention to just a few specific things that we want to keep track of.

The first thing is, we are going to divide the 5-year plan into two parts. The first year of the 5-year plan is what we will call the budget year. This is the request we send over to the Congress and say, this is how much money we want, this is what we want to buy.

The last 4 years of the 5-year plan are known as the out-years, and those are what we plan to do over the long term, although we may not send those years to Congress. We do send the second year for authorization but we do not send the three outyears.

So, we want to distinguish between the budget year and the outyears, the first year and the last 4. Also, let us just keep track of one of these fighters to see the annual changes in first-last year cost projections. I am going to pick the F-14 because its changes are more dramatic than some of the others, although they all can be pretty dramatic.

TACTICAL FIGHTER PROCUREMENT PLANS: PREDICTED COST AND CUMULATIVE QUANTITY (FY 77-81 PRESIDENT'S BUDGET, JAN 76)



INCLUDES

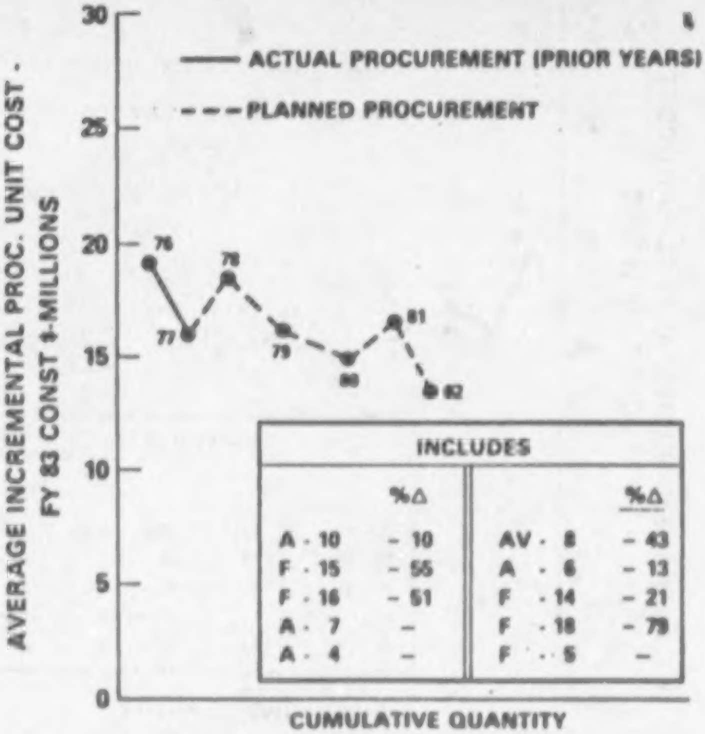
	%Δ		%Δ
A - 10	- 40	AV - 8	- 47
F - 15	- 31	A - 6	—
F - 16	- 75	F - 14	+ 46
A - 7	- 25	F - 18	- 62
A - 4	+ 7	F - 5	—

So, let us look at the next budget.—the fiscal year 1977-81 plan. In the previous chart, fiscal year 1977 was one of the outyears; in this slide, it is the budget year. In the the previous slide, fiscal year 1977 was projected at around $13.5 million and the F-14 we projected a minus 16-percent cost decline.

In this slide, 1977 is now the budget year and it is much higher, it is around $17 million. And look at the F-14, it has a cost increase projected of plus 46 percent. And the hookup in fiscal year 1981 is due to the same reason I explained in the preceding slide, a change in the mix. You can see the general tendency to try to project declining costs down there.

In the next 5-year plan, 1978 will be the budget year, and in this budget it is an outyear which is less than 1977. Remember, the F-14 is plus 46.

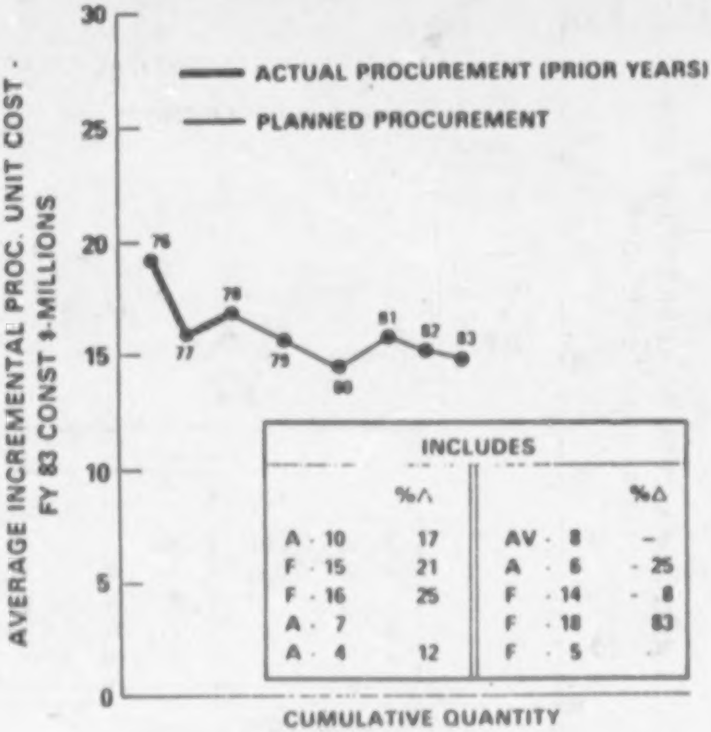
TACTICAL FIGHTER PROCUREMENT PLANS: PREDICTED COST AND CUMULATIVE QUANTITY (FY 78-82 PRESIDENT'S BUDGET, JAN 77)



Now, 1978 is higher than 1977 but again, we are projecting that cost decline and the hookup is still the change in mix effect. And the F-14 is back in the negative column, minus 21 percent. In 3 years the F-14 went from minus 16 percent to plus 43 percent, to minus 21 percent.

You can see a general pattern. As an outyear approaches the budget year, the costs tend to rise but we continue to project declining costs into the outyears as new years enter the planning window. Of course, this number is going to be effected by the changing mix effect.

TACTICAL FIGHTER PROCUREMENT PLANS: PREDICTED COST AND CUMULATIVE QUANTITY (FY 79-83 PRESIDENT'S BUDGET, JAN 78)



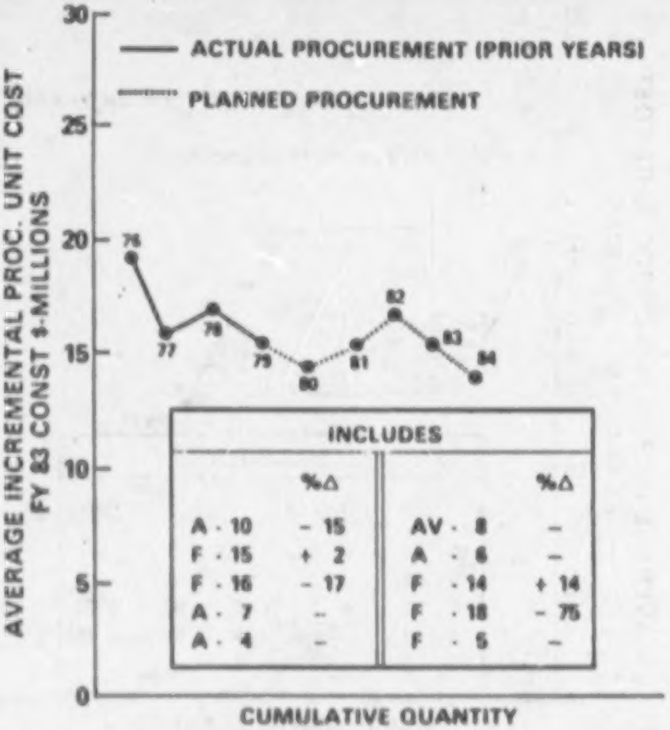
In the next couple of years, we actually experience decreasing costs, starting in fiscal year 1979.

We actually got some declining costs over this time period. The basic reason is that the Air Force tactical fighter modernization program was running at full steam during this period. We were producing F-15's, F-16's, and A-10's, all of them at fairly decent rates; the A-10 in particular had a high rate, the F-16 at an almost as high a rate; the F-15 a little bit lower but still a reasonably high rate. All of those planes experienced declining costs in at least 2 of the next 3 years.

In contrast, the Navy was buying planes very slowly, they were also expensive planes and they were experiencing an increase in cost during this period. But the Air Force program was able to overwhelm the effects of the Navy program.

This is probably the best proof that we can find in recent history where we have an example of production rates driving down costs. They did work during this period.

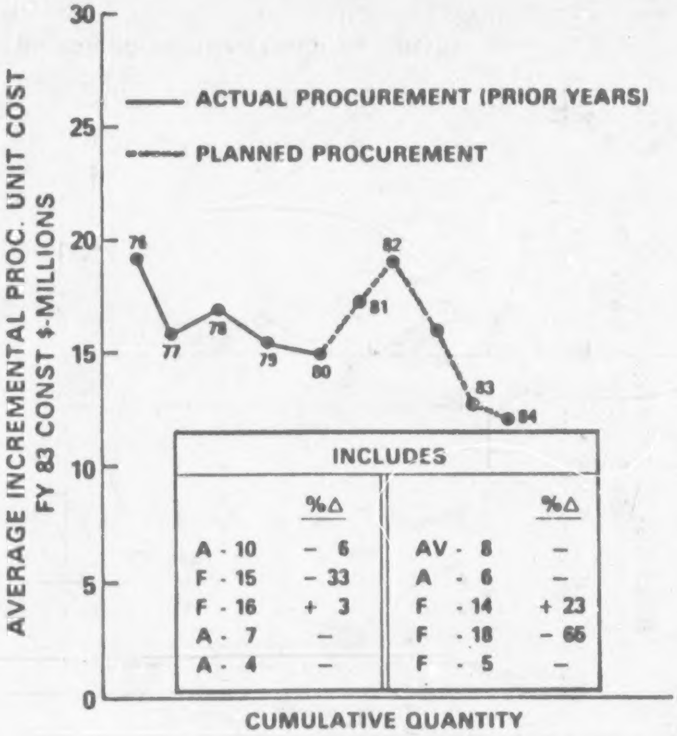
TACTICAL FIGHTER PROCUREMENT PLANS: PREDICTED COST AND CUMULATIVE QUANTITY (FY 80-84 PRESIDENT'S BUDGET, JAN 79)



INCLUDES			
	%Δ		%Δ
A - 10	- 15	AV - 8	–
F - 15	+ 2	A - 6	–
F - 16	- 17	F - 14	+ 14
A - 7	–	F - 18	- 75
A - 4	–	F - 5	–

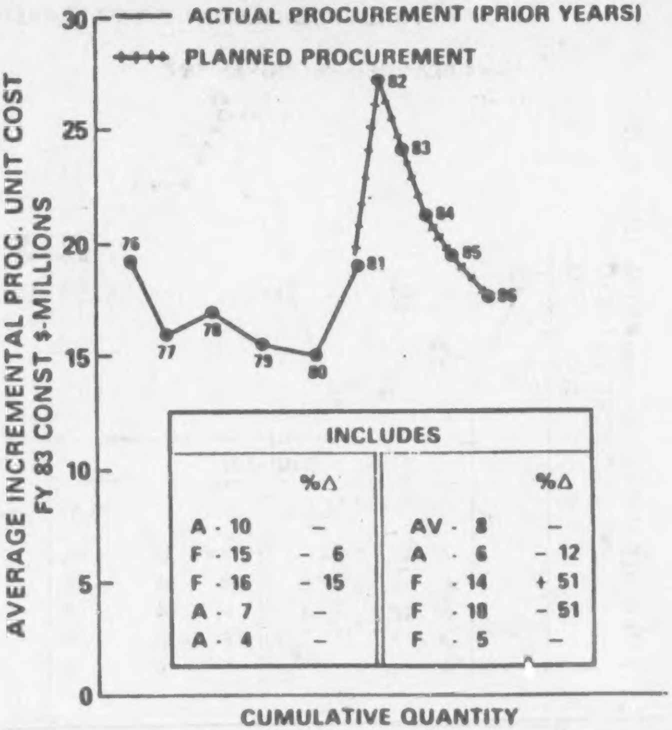
Here you can see what is happening, we are marching out with the actuals here. We are accumulating from, 1975 equals zero. Remember, this is an analog to a learning curve. This is the fiscal year 1980–84 plan.

TACTICAL FIGHTER PROCUREMENT PLANS: PREDICTED COST AND CUMULATIVE QUANTITY (FY 81-85 PRESIDENT'S BUDGET, JAN 80)



After 1980, costs are starting to go up now.

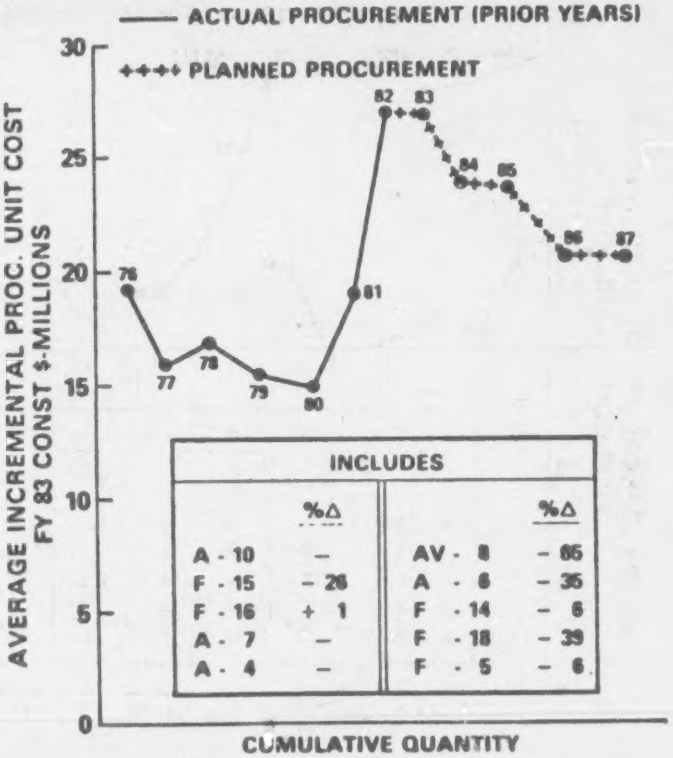
TACTICAL FIGHTER PROCUREMENT PLANS: PREDICTED COST AND CUMULATIVE QUANTITY (FY 82-86 PRESIDENT'S BUDGET, JAN 81)



Here is the 1982 budget plan, as it was before the new administration made the changes in the budget. There was not a procurement annex done for the entire period because of the fast-paced events during that period. So I elected, just to keep continuity, to use the Carter 1982 program. This is the Carter 1982 program as opposed to the effects of the new administration's changes.

You can see that there were enormous costs projected for 1982, but then they were projected to decline over the fiscal year 1983–86 period.

TACTICAL FIGHTER PROCUREMENT PLANS: PREDICTED COST AND CUMULATIVE QUANTITY (FY 83-87 PRESIDENT'S BUDGET, JAN 82)

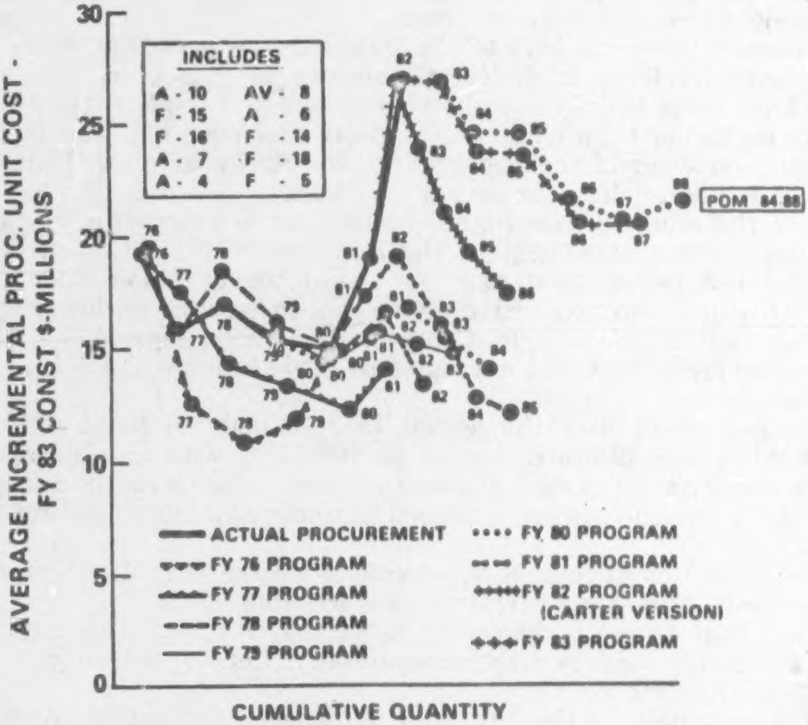


INCLUDES			
	%Δ		%Δ
A - 10	–	AV - 8	– 66
F - 15	– 26	A - 6	– 35
F - 16	+ 1	F - 14	– 6
A - 7	–	F - 18	– 39
A - 4	–	F - 5	– 6

Here is the 1983 budget, 1983 through 1987. The solid line is a snapshot of what actually happened between fiscal year 1976 and fiscal year 1982. The plan is a projection for the next 5 years that is, fiscal year 1983–87.

Now, what we have done is, we have looked at about eight historical plans, so we have gotten historical data on our plans. We also have historical data on what actually happened. We can put this all together on one slide and have a comparison of the history of our plans with the history of reality.

PLANS/REALITY MISMATCH: AVERAGE INCREMENTAL COST OF A TAC FIGHTER



Mr. SPINNEY. This is known in the Pentagon as the "spaghetti" diagram. What we have here is a snapshot of our plans and a snapshot of reality. This solid line is what actually happened, and the other curves are the various 5-year projections discussed in the preceding slides.

What I also have on this chart is the first draft of our 1984 to 1988 5-year budget plan which was published last May. That is called the Project Objectives Memorandum or POM. I also have information on the second draft, I did not have time to make any viewgraphs of the September data. Basically, there would be no change in this chart worth mentioning.

We have not yet had time to analyze the current budget data because the computer tapes are just getting in now.

Anyway, the solid line depicts what happened and the other lines depict what we said was going to happen. We have the 1976 budget, the 1977 budget, the 1978 budget, and so forth. Now, there are four main points to be derived from this chart. This is a very important chart.

The first point is that over this time period, and we are including the first draft of the 1984 budget, there is a distinct pattern that emerges regarding our ability to predict the out-years.

We are pretty good on predicting costs for the budget year. Sometimes we are higher, sometimes we are lower. Generally, when we are higher or lower, the differences between the actual costs and the planned cost in a budget year reflect changes in the mix between what was planned and what was actually appropriated. That is where most of the differences are. Our actual cost estimates for the budget year are quite accurate.

However, when we look at the out-years we find that there is a systematic tendency to underestimate out-year costs. In this entire data base there is only one out year in one 5-year plan that turned out to be higher than what was actually procured, and that is 1979, the first out-year of the fiscal year 1978–82 5-year plan. That estimate was higher than the actual 1979 cost.

Now, the reason it was higher turned out to be programmatic. In the next 5-year plan, that is, the fiscal year 1979–83 5-year plan, the Defense Department took out a number of F–14's and A–6's, both of which were expensive planes. So, in essence we lowered the average cost of our sample. Congress also added some A–7's which were also lower than the average cost. This lowered the actual cost further.

The net result was, the actual 1979 turned out to be different than what was planned 1 year earlier. But with this exception, every other one of these out-years is below what actually occurred. That tells you the system is biased to underestimate those out-year costs.

The second point to be made is that if we examine the changes in these cost estimates over time, we see that as a given out-year moves closer to the budget year as we march forward in time, the cost estimates tend to rise incrementally. Let us look at our first estimate for 1982.

That was made in the 1978 to 1982 budget, that is this green one going from there to there. We projected costs down in this range, somewhere around $14 million. The next year, in the 1979 budget, it was up to here. Then it was moved up to here; then it was up to here: then 1982 became the budget year here and we pretty well hit it. Or you can look at it here, here, and here.

Now, when you have a process that is operating in this manner, you have to picture yourself in a Pentagon environment. We are dealing with thousands of programs and more people pushing and advocating those programs. You are also dealing in conditions of high pressure in an internal budget battle between the services, between OSD and the services, and within the services. Everybody is fighting to save their program, that is just the way the institution is set up.

When you are in that kind of a situation, you are more concerned, naturally, with the present than 5 years in the future. That is just human nature. That is why we have that expression in finance called discounting the future. The far years are not that important.

Then, when you figure there are thousands of these programs gyrating around like this and you are dealing with day-to-day problems, it is very easy for these things to creep up on you. In effect you become desensitized to cost growth over time.

The third main point is that this chart gives us a real feel for what the impact of cost growth is on force structure modernization. We tend to think of cost growth in a historical perspective—like those charts I showed at the beginning of the briefing—where we are today compared to where we have been. But the real impact of cost growth is where we are today compared to where we said we were going to be because that affects our long-term costs of modernization.

For example, going back to the 1978 through 1982 budget, this green one here, we projected that our modernization costs in 1982 would be here. They actually turned out to be here. That is a mismatch of 100 percent.

Now, we cannot change this cost very much in the near term. The basic planes that are being bought here were bought here. Now, there may have been a lot of modifications to them. There may be sound reasons for why they are more expensive.

The simple fact is, though, they are twice as much here at the margin. We cannot change these costs a whole lot, so we are sort of stuck with them. If we go out to 1987 and we look at the planes that are being procured in the 1987 budget here, we find that most of those planes were also planned for procurement back in the fiscal year 1978–82 5-year plan.

So, this mismatch here has implications far greater than 5 years, it can extend 5, 10, maybe 15 years into the future. The reason is because it takes so long to bring in new equipment with fundamentally different costs. In the near term we are limited to varying production rates. We can drive down costs a little bit if we want to increase production rates. We can drive them down maybe a fairly significant amount, but we are not going to get them down to the original prediction.

We could also substitute a lower cost mix. But that is basically all we can do right now in the short term. So, we are sort of stuck with these costs.

So, when we have this kind of mismatch between planned and actual costs it has implications for force structure modernization over a very long period of time.

The fourth point that I want to draw from this slide relates to the debate about this cost growth problem over the last—well, probably over the last 30 years but certainly over the last 10 years.

Many people have argued that the reason costs have grown is because of budget cuts. I do not think that is the reason costs are growing. I think the reason costs are growing is because of that systematic tendency to underestimate future costs.

Let me show you why I feel this way. If we connect up these points with the line, say for 1982, the first estimate for 1982, the second, third, fourth, and so forth up to here, with a line like that, the degree to which it tilts toward the vertical axis gives you an idea of the force structure shrinkage that took place.

Remember, we are accumulating weapons from 1975. It turns out that the shrinkage in this example is a shrinkage of less than 6 percent. That is why I picked tactical fighters to illustrate the problem. It turns out that while a lot of systems took budget cuts in 1970, tactical fighters were an exception. There was considerable growth in tactical fighter procurement in the last half of the

1970's. For example, my recollection is—I have a report on this that I published several years ago—between 1975 and 1982, the Air Force tac air investment budget grew at an annual real growth rate—an average annual real growth rate—of something around 11 percent. That is pretty impressive performance.

Now, budget cuts naturally are going to magnify the cost-growth problem. If you clamp down on a program and you reduce its production rate, you are going to have cost growth, there is no way out. But to blame all cost growth on budget cuts, I think, is an error.

This is why I say that one of the fundamental things that we have to come to grips with are these structural problems. I believe the future year underestimation bias is a structural problem.

You can see that the change between the 1983 and the 1984 budget is exhibiting the same type of cost changes. You can see the cost increases here.

Senator METZENBAUM. Mr. Spinney, I may have missed it, but could you explain why you have the years at a different point on the chart? You would normally think 1986 would be a straight line down, or 1984.

Mr. SPINNEY. Because what we are normalizing this against is cumulative quantity and cost. The years float out. The years will change, depending on whether we reduced the procurement quantity or expanded the procurement quantity.

Senator METZENBAUM. I do not quite understand that.

Mr. SPINNEY. I picked the learning curve as an analog because—in fact, I did not even know it was a learning curve when I started. When I was trying to put this data together in my mind, I had a whole ream of computer printouts. I was trying to see, how I could display all this data on one chart. I needed a visual depiction so I could understand what is happening because when you just look at numbers you cannot keep track of changes.

So, I tried all sorts of graphical displays. I found that the only way I could get all the 5-year plans on one chart was to plot cost versus cumulative quantity. This gives us a common baseline. When we do a vertical slice through here, it is a constant point on the so-called learning curve.

Now, in the 1976 budget we predicted we would be out at this quantity in 1978. Well, it turns out we actually did not get there. Congress may have cut the procurement or maybe we requested smaller procurements.

So, the 1978 point would naturally move back. That is basically why. The year here is a floater.

Senator METZENBAUM. Thank you.

Mr. SPINNEY. The point that I was making is that in the case of tactical fighters, that you cannot blame this problem of cost growth on budget cuts. And to illustrate that problem, we are going to take a snapshot of what you might think of is the last 5-year plan that we completed. That is the 1978 through 1982 5-year plan—the green one here—and we will just look at our major programs that we procured during that time period. That is depicted on the next slide.

FY 78-82 Program

Predicted Versus Actual Performance

	A-10	F-15	F-16	A-6	F-14	F-18	Total
● 5-Yr Procurement Program (Total Procurement Cost-Const 83 $-Billions)							
FY 78-82 Program (Predicted)	3.8	7.4	9.8	.8	5.9	5.9	33.6
Actual	4.1	7.4	10.0	1.2	5.2	6.4	34.3
% Change	+7	-	+2	+49	-11	+10	+2
● 5-Yr Procurement Quantity							
FY 78-82 Program (Predicted)	538	325	785	39	206	231	2124
Actual	512	313	725	54	170	157	1931
% Change	-5	-4	-8	+38	-17	-32	-9
● 5-Yr Average Unit Procurement Cost (Const 83 $-Millions)							
FY 78-82 Program (Predicted)	7.1	22.9	12.5	21.1	28.5	25.4	15.8M
Actual	8.0	23.8	13.8	22.7	30.8	41.0	17.8
% Change	+12	+4	+11	+8	+8	+61	+12

These are the major tactical fighter programs. We procured some other planes but these are the major ones that we bought. This is what the 1978 budget predicted we would spend for each one of these systems, a total of $33.6 billion over the 5-year period. We actually spent, in constant dollars, $34.3 billion. That is an increase, strictly speaking, of 2 percent. But given the uncertainty of the inflators, you should say the budget was constant.

We procured 9 percent fewer planes over that period than were originally projected. The average cost of the plane over the 5-year period went up by 12 percent. Now, that seems dramatically different than the 100-percent mismatch but you can see what we are doing here. We are talking about costs that went like this, we are low early on and then high later on. That is why you have the difference.

This is a snapshot of history, it does not say anything about the current cost of modernization. The preceding slide tells us what our current costs of modernization are.

Anyway, as you can see, here is a case where we basically spent what we planned to spend. We got less because unit costs went up.

So, the four points are: There is that systematic tendency to underestimate the outyear costs. I want to stress a point. This should not be contrived as a kind of an orchestra playing or anything like that. You are dealing with a very complex bureaucracy with thousands of people interacting with each other under conditions of pressure. There are natural forces that encourage this thing to happen, in my view. That is a personal view.

So, we have the systematic tendency to underestimate the outyears. We saw how we basically desensitize ourselves to that cost growth because costs gradually increase as they came forward in time. We saw that the real pressure on force structure modernization is the mismatch between actual and planned marginal costs and we saw that in the example that I used, you cannot blame the cost-growth problem on budget cuts. We basically got the budgets we asked for.

REASONS FOR "NON-LEARNING" IN REAL WORLD

1. **Buy-ins**
    - "Low-Balling" the initial bid
    - Under estimation of support investment costs--T.O.s, ATE, training devices and simulators

2. **Continual Design Change**
    - ECPs--e.g., over 500 in 2nd year of F-15 production, 360 in 4th year of F-111 production.
    - Addition of "new capabilities"--e.g., F-16 MSIP, F-15E, M-60A3.

3. **Stretch-out--i.e., program change**
    - Caused by increasing unit cost and unwillingness to cancel programs competing for funds.

4. **Unplanned Changes in Contractor Business Base**

5. **Defense Industry Labor Cost Growth**
    - Exceeds growth rate for economy and is a real cost of non-competitive industry-government relationship.
    - Undermines productivity improvements derived from "labor learning."

Now, why are we not going down the learning curve, or why are not costs declining as we plan for them to decline? Well, there are a lot of reasons for this.

We have been doing cost-growth studies in the Pentagon for years. We know what the problems are. To my mind—and this is a personal opinion—I think the fundamental problem is what is known in the Pentagon as the buy in. Now, the buy in often has sinister connotations associated with it. I do not want to imply that here, and I want to stress that point.

What I am talking about is an underestimation in our early preproduction plans. We are programing in too steep a cost decline. Of course, that makes it easier to forge a commitment within the Pentagon and outside the Pentagon to get a program started.

Support investment cost is an area that is becoming more and more important and is a very difficult area to deal with. As we go to more and more complex hardware we are finding that the support investment costs are becoming much more difficult to predict.

There is much less of a historical baseline on this data. We are talking about substituting dramatically different technologies that we are not used to operating in the field with. We just do not have a real feel for these costs and it is going to take time. We have found in the past that we have tended to err on the optimistic side.

Now, these other reasons here, reasons 2 through 5, are happening at the same time that the buy in is happening. They tend to mask the fundamental problem which is that outyear underestimation bias. That is what the buy in really is.

Senator DOMENICI. Mr. Chairman, could I ask a question?

Chairman TOWER. Yes.

Senator DOMENICI. Let me just talk a moment about your statement about "systematic underestimating outyear costs." You are saying that the processes, in your opinion—if you are right—the processes used in evaluating are not working. Is that what you mean by systematic?

You do not mean that somebody is intentionally doing it.

Mr. SPINNEY. No, sir, not at all. I tried to stress that.

Senator DOMENICI. What you mean is that these various tools to estimate that are used for the 5-year projections and the outyear costs——

Mr. SPINNEY. I would not try to narrow it down to saying those three rationales are the source of the problem. I think we tend to be overly optimistic in the use of those rationales. I personally feel the learning curve is so restrictive in its application and because of the assumptions underpinning the learning curve, it is not a good tool for budget planning.

I am not saying we should never use a learning curve. It may be appropriate for contract negotiations or competitive evaluation of proposals. I am talking about budget plans where we are trying to put together a roadmap to match up with the real world, the real budgetary world.

I do not think learning curves are good for that kind of budgeting process. But I think what you have here is not just an abuse of the tool, you should not treat it that narrowly. You are dealing with probably the most complex bureaucracy in Washington—one that, over the years, evolved patterns of behavior in response to emerging external conditions. We have naturally gone in this direction.

In life you can tend to go too far and maybe need a correction. That is what I am trying to say. The underestimation bias is not orchestrated, I want to stress that. I do not think there is anyone pulling all the strings on this thing, quite the opposite.

Senator GRASSLEY. By "quite the opposite" you mean, not enough control of what is going on?

Mr. SPINNEY. Yes, sir.

Senator GRASSLEY. All right.

Mr. SPINNEY. I do not want to imply by that response that we should have a top down, hardcore control laid on. I do not think that will solve the problem; we have tried that in the past. But essentially we are not controlling ourselves and I think we are going to have to.

Senator GRASSLEY. Is it possible to control yourselves, I mean ourselves?

Mr. SPINNEY. I hope so.

Senator GRASSLEY. You hope so.

Mr. SPINNEY. I think so. You have to be optimistic about that sort of thing.

Senator METZENBAUM. Mr. Spinney, just on that same line. You say that it is not intentional and that it is a problem of the bureaucracy, most complex bureaucracy.

But when you have a pattern and a history that goes back over a period of many years and in each instance you have had this increase, sometimes higher than others, and you have failed to make that repesentation to the Congress and take it into account, is there not something actually somewhat duplicitous about that?

Mr. SPINNEY. I cannot answer that question, Senator.

Senator METZENBAUM. Well, is there not something, if you know a pattern that has occurrod over a period of many years with no exception that the costs have been increased, that the learning curve has not occurred and then you still continue to come to the Congress and say that we are going to be able to get these lower prices out over the years later on, is there not some kind of irresponsibility—if it is not duplicitous—in failing to make that representation in your budgetary presentations?

Mr. SPINNEY. I do not think that is the case.

Senator METZENBAUM. What do you think, why do you think it happens?

Mr. SPINNEY. I think one of the problems is that it is a very difficult process to understand. We just have to take a lot more steps. I am trying to understand the internal dynamics of the defense decision process as opposed to simply saying the problem is a question of money or a question of guns versus butter, or something like that.

I think we are dealing with a traditional, bureaucratic problem here.

Senator METZENBAUM. But when you have said to the Department of Defense that the costs will be higher, or when you indicated this is the pattern of the past, there was great difficulty in permitting that information to be made available to the Congress of the United States. Is that not the case?

Mr. SPINNEY. I am sorry.

Chairman TOWER. Senator, let me suggest that we would hold questions of that type until he is completed, and confine our questions to mere clarifying questions.

Senator METZENBAUM. All right.

Senator TOWER. Certainly, your question will be in order at that time. That is a judgmental question. So, I think if we can confine ourselves to the clarifying questions.

Mr. SPINNEY. Well, just to summarize, I got into some speculative statements myself. Actually the analysis, to the extent that my data was correct here and my interpretation was correct, factually I drew those four conclusions from the analysis.

Some of the reasons that I have talked about, bureaucratic reasons, are obviously personal opinion and very difficult to defend, in an analytical way.

Going back to the reasons why we may not be learning, as I said earlier, this in my mind is the major problem, the tendency to underestimate costs in the outyears.

However, these other four categories here and others are operating at the same time. That simultaneous operation tends to mask the effects of the cost underestimation bias because you have a lot of variables operating at the same time.

What we are faced with is a situation that is similar to high school algebra where you have more variables than equations and you cannot sort out the impact of individual variables.

One of the biggest things, in my mind, is the continual design change in our systems. When we project these long-term cost declines, in essence we are making the assumption that the designs are relatively stable. However, designs are continuously changed in the Defense Department, they are changing for two reasons. David mentioned them—he mentioned one of them.

The first reason is, you have to change the design sometimes to correct unforeseen deficiencies. Any time that you are faced with a complex engineering problem, that is going to happen, there is just no way out.

The second reason designs change is new technological opportunities emerge or you may perceive the threat is changing, and you may decide to make a conscious decision to change the design. Well, that tends to undo the effects of the learning. But our planning tends to assume those design changes are not going to occur.

Just to give you an example of what is happening. I have two cases where the Defense Science Board documented just the rate of design change, or they tried to document the rate of design change. The ECP is known as an engineering change proposal. That is the mechanism by which you change the design. It is a proposal, it does not mean it was necessarily approved.

There were over 500 ECP's approved in the second year of the F-15 production. And even in the fourth year of the F-111's production, there were over 360 ECP's proposed. This is an average of one a day. Not all of these ECB were approved. However, you can see that the designs are in a considerable state of flux.

Of course, there is the addition of a new capability. These are just some examples that are currently ongoing. The F-16 multinational staged improvement program; the F-15E, which converts the F-15 to an air-to-ground bird, and the M-60A3 tank. All these changes are consciously made and they dramatically increase the costs of those weapons.

But our plans—if you look back a few years earlier and we are going to do that in a minute—in effect said that that tendency to change does not exist. Again, that is not a conscious thing, I do not think.

We have the problem of stretchout, or program change. When programs get stretched, their costs go up. When you have a cost-growth situation and you are not willing to cancel programs to free up funds for competing programs, you are going to have a stretchout and that is going to magnify the cost-growth problem further.

You have the problem of unplanned changes in a contractor's business phase. If you cancel one program, the cost of another program produced by the same manufacturer is going up, he has to spread his overhead somewhere. That is an uncertainty you have to live with in the Defense Department—and any other business, I might add.

Then we have the problem of defense industry labor cost. Most defense contracts are some form of cost reimbursement. Generally the way it works, it is a cost plus some sort of profit or fee which depends on how well he beats his target cost. He basically gets reimbursed for costs and then gets some sort of profit based on performance.

Well, that is naturally going to make him less resistant to demands for labor wage rate increases on the part of his work force. He is going to be reimbursed for those costs. It is not a free, competitive marketplace.

Of course, if labor cost grows, that is going to undermine the effect of learning because learning is in terms of improved output per man-hour and labor cost in terms of dollars per man-hour. If the dollars go up, you can have reduced man-hours and still costs can grow.

Now, these reasons for nonlearning and others—I did not mention inflation here. We took the effects of inflation out of our analysis. But there is another source of cost growth that I cannot figure out how to quantify. It is caused by the instability, caused by our inability to predict inflation—you might think of it as a second-order effect of inflation. I have ignored that and I have ignored others. But the key point is, these things are all acting at the same time.

Senator **METZENBAUM**. Mr. Spinney, can you just clarify for us what you mean when you say, "exceeds the growth rate for the economy and is a real cost of noncompetitive industry-government relationship."

What do you mean by the noncompetitive industry-Government relationship?

Mr. **SPINNEY**. Because the contract is cost reimbursement.

Senator **METZENBAUM**. I see.

Mr. **SPINNEY**. You have one customer, several suppliers, you have a cost reimbursement. "It exceeds the growth rate," that chart is overstated. I am glad you brought that up. I did not have time to change some of these slides.

I should say something more to the effect that there is some evidence suggesting that it exceeds the growth rate. We are not that sure of it at this point but there are some suggestions that it is growing faster than the labor cost in general.

So, please note that for the record.

Senator **GRASSLEY**. Are you studying that aspect of it?

Mr. **SPINNEY**. Am I personally?

Senator **GRASSLEY**. On an ongoing basis.

Mr. **SPINNEY**. No, sir.

Senator **GRASSLEY**. Are you going to, in the future, crank that in?

Mr. **SPINNEY**. Quite frankly, I would rather not. That is a real monster of a problem. I really do not have the background for that.

Senator **GRASSLEY**. But is it something you are waiting for to crank into this analysis, like a few months from now?

Mr. **SPINNEY**. No, sir. No, sir, I am doing strictly budget data, what we say we are going to do versus what we actually do.

Each one of these categories is an enormous study in and of itself. These are very complex problems and, as you go from weapon system to weapon system, they are going to have a different flavor. Individual weapons are exceedingly complex pieces of equipment and these problems can take all sorts of different forms.

These have been documented and studied ad nauseam over the years and I think they reflect the basic instabilities that exist in the real world. That is one reason why our plans are not coming to fruition.

RESULT: INSTABILITY AND AMBIGUITY

- Instability
  - Real world is characterized by continuous unplanned change in hardware design, production rates, program budgets, and unit costs.
  - Instability undermines theoretical validity of applying learning curve theory to budget planning.
- Ambiguity
  - Complicated, simultaneous interaction of "Reasons for Non-Learning":
    1. Hides fundamental problem of buy-in.
    2. Diffuses responsibiltiy and blame for cost growth.
    3. Bogs people down in endless debate over "what" caused cost growth.

Which Encourage

- Ambivalence:
  - Competing impressions of events that inspire competing partial solutions--e.g., eliminate ECPs.
- Procrastination:
  - Ambivalence, coupled with bureaucratic competition for resources, invites delay in dealing with general problem of a systematic mismatch between planning and reality.

Implication: Need A General Solution to Remove Plans/Reality Mismatch

- Change Reality to Fit Our Plans
- Change Plans to Fit Reality

Now, when you take into account that these reasons for non-learning are acting simultaneously, it is difficult to sort out their individual effects. In other words, if I look at a particular situation of cost growth I cannot say this amount was due to wage growth; this amount was due to a buy-in; this amount was due to ECP's. That is a very difficult thing to do.

You also have the inherent instability in the defense planning environment. It is an instability that we cannot change, no matter how much we would like to. It would be really nice to have a stable world in which to plan in. The real world is unstable and our plans have to reflect that instability. We have to be able to learn to cope with that instability so we can adapt and grow, and become more vigorous in the real world.

The real world is characterized by continuous unplanned change. We have seen it characterized by unplanned changes in hardware design, production rates, program budgets and unit costs. Ultimately, the defense budget is appropriated every year, that is a natural source of instability.

The instability undermines the theoretical validity of applying the learning curve theory to budget planning. I stress budget planning as opposed to certain other types of analyses.

We have the ambiguity that I mentioned earlier, caused by the simultaneous interaction, the reasons for nonlearning. That hides what I believe to be the fundamental problem, the buy-in, or the out-year underestimation bias. Ambiguity tends to defuse responsibility and blame for cost growth.

How many hearings have been held in this building over cost growth over the last 10 years? The cost growth problem is very difficult to sort out, and of course it bogs people down in endless debate over what causes the cost growth.

Well, the instability and the ambiguity act together to encourage a mental state of ambivalence, that is a state in our mind where we have competing impressions of what is going on. Ambivalence is naturally going to encourage partial solutions. Some people think the problem is this, other people the problem is something else.

One person that I briefed this to in the Pentagon said, "Well, this is a very simple thing. We are going to eliminate ECP's." I said, "Fine." Probably ECP's can be reduced and that could help us get lower costs. But you are never going to eliminate ECP's, a lot of them occur for good reasons. That is the type of problem that we have here.

Well, when you couple the state of ambivalence with bureaucratic competition for enormous sums of money, you have a formula for delay—delay in dealing with the fundamental problem which is the systematic mismatch between plans and reality.

Now, I argue that we need a general structural solution that goes to the heart of the problem, that directly attacks the plans/reality mismatch. There are basically two ways to do it. We could change reality to fit our plans and we should be working on these problems. There is a lot of improvement that can be made here and we can reduce cost. But that is going to take time. We are talking about changing the behavior of organizations that have evolved over the last 30 years; or, we can solve the problem with a stroke of the pen, we can change the plans to meet reality.

THE CHOICE

There Are Four Strategies for Financing the Repricing

- Hold Production Plans Constant and Increase Modernization Budget by:
  1. Increasing Long-Term Growth In The Total Defense Budget
  2. Reducing Readiness Budget And Use "Savings" To Increase Growth In Modernization Budget
- Hold Modernization Budget Constant And Reduce Production Plans By:
  3. Slowing Procurement Rates And Accepting Increased Cost In Addition To Repricing Effects
  4. Cancelling Programs To Free Up Funds For High Rate Production Of Remaining Programs

Caution

All Four Strategies Are Highly Optimistic Because Each Assumes:

- Congress Will Appropriate Defense Requests Over Long Term
- Readiness Costs Will Not Grow Faster Than Planned

If Either Assumption Is Incorrect, The Choice Becomes Much More Brutal

This is my recommendation: Basically, I think we have to reprice the out years in the procurement budget. We face a choice that is fairly simply stated. It is not going to be easily implemented but it is simply stated. Within a constant budget—and I do not want to imply that I am advocating budget decreases, if anything, we need budget increases over current plans—but within a constant budget we can hold our production—well. The first way is to increase the procurement budget in order to make room for the repricing over the long term; or we are going to have to find some way to hold the modernization budget constant, by reducing production plans. Those are the two basic choices.

With each one of those, there are two ways of financing the repricing. The first thing is to increase the long-term growth in the defense budget and pump that growth into the modernization account.

The second choice is to reallocate within the existing budget. We can reduce readiness and use the savings, to increase growth in the modernization budget.

If we elect to hold the modernization budget constant, then we have to find a way of slowing procurement. That can be done in two ways. We could slow procurement rates—in an abstract sense—across the board and basically accept increased costs in addition to the repricing effects, or we can cancel programs to free up funds——

Chairman **Tower**. May I ask a clarifying question?

Mr. **Spinney**. Yes, sir.

Chairman **Tower**. Are you saying that modernization is irrelevant to readiness?

Mr. **Spinney**. No, sir.

Chairman **Tower**. You say reduce the readiness budget and use the savings for modernization.

Mr. **Spinney**. You have a good point there. What I did when I used those terms, I divided the budget into two parts, the part of the budget that is associated with modernization and the part of the budget that is associated with readiness. That is the way I mean those terms there.

But I do not mean to say that reduced modernization is independent of readiness. The readiness budget, the way I am using the term here is, it includes the personnel budget, the O&M budget, and the readiness for related procurement, such as spare parts.

The modernization budget is for procurement of major modernization items. That is the division of the 5-year plan.

What I am saying is, if in effect we did not want to increase the total budget but we wanted to follow the first strategy, then the other option is an iternal reallocation of funds. That is all. I am not saying I am recommending it, I am just saying that is the option.

If we want to hold the modernization budget constant, in other words the major systems procurement part of the procurement budget, then we also have two options. It is not a clear-cut, black-white thing, you can have variations in this scheme.

But the basic way is, you can stretch everything, keep all programs alive and accept increased cost growth; or you can cancel some programs but free up funds for the remaining programs.

Chairman **Tower**. Well, could not failure to modernize ultimately drive up your O&M cost?

Mr. **Spinney**. Yes, sir, you get caught in a real spiral on this thing.

My preferred recommendation is No. 1. This is the one I like the best. I think we should add money and then finance the 5-year plan properly.

I do not think we should do this. I think we made some bad mistakes and I have documented my feelings on those errors in a report I submitted to the Armed Services Committee 2 years ago on this.

I do not think we should do strategy 3, I do not think we should just try to keep everything alive and accept increased unit costs. So, if we are not willing to do strategy 1, my recommendation is we should do strategy 4. That is assuming no change in the defense budget. We have not changed the total defense budget yet.

Senator **Metzenbaum**. Mr. Spinney, are you not in the area now of armed services policy as distinguished from your area of expertise, which is to say that the budget process that is being used by the Department of Defense does not adequately indicate what our increased costs are going to be in the future? Is that not really your feel?

Mr. **Spinney**. Yes, sir. I did say I prefer—those are my feelings.

Senator **Metzenbaum**. Because it seems to me when you get into this area and you get into evaluated judgments that are particularly within this committee's prerogative—that I do not serve on.

But it seems to me that the real issue is, is the budget accurate or is it knowingly being underestimated. I think that is what you are saying.

Mr. **Spinney**. It is being underestimated. I would not say "knowingly."

Senator **Metzenbaum**. Pardon?

Mr. **Spinney**. "Knowingly," I would not say that. I think the budget is underestimated in the out-years. That is my position, based on the analysis I made. But I would like for the Defense Department to remain a viable institution, that is why I like strategy 1.

But you are correct, I should not be talking about it.

The only other thing I want to say about this choice is, if in fact it is the country's greater wisdom—for whatever reason—to cut the defense budget, this choice is going to be much worse.

Ultimately, when I say we should resolve the structural problems, my position or my view is that we want to solve these structural problems in a way that we make the best decisions, independent of whether the budget is going to go up or down. The budget level is something that is determined by, as we say in the Pentagon, a higher pay grade than I have.

I think in the near term we are going to have to face the fact we have a lot of repairing to do, though.

That ends the first part of the briefing. [Laughter.]

The next part of the briefing——

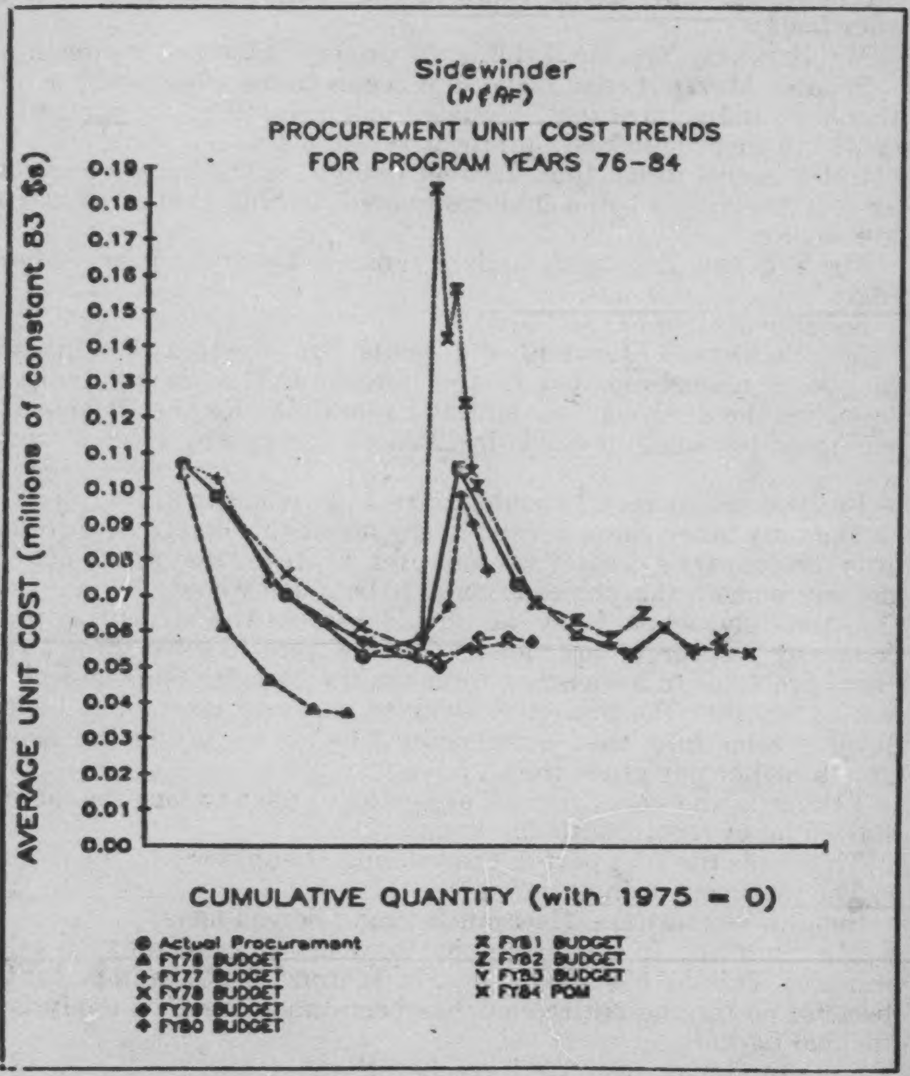
Senator **Goldwater**. How much longer do you have?

Mr. **Spinney**. It should not be too long, sir, probably 15 to 20 minutes. This part is important. The reason I feel it is important is because so far the entire case has been made from an analysis of tactical fighters.

Senator **Goldwater**. We have seen that.

Mr. **Spinney**. Right. That is just tactical fighters. What I am going to do now very quickly in the next slides is flip through individual programs in the same kind of format, so that you can see that I am talking about a general problem.

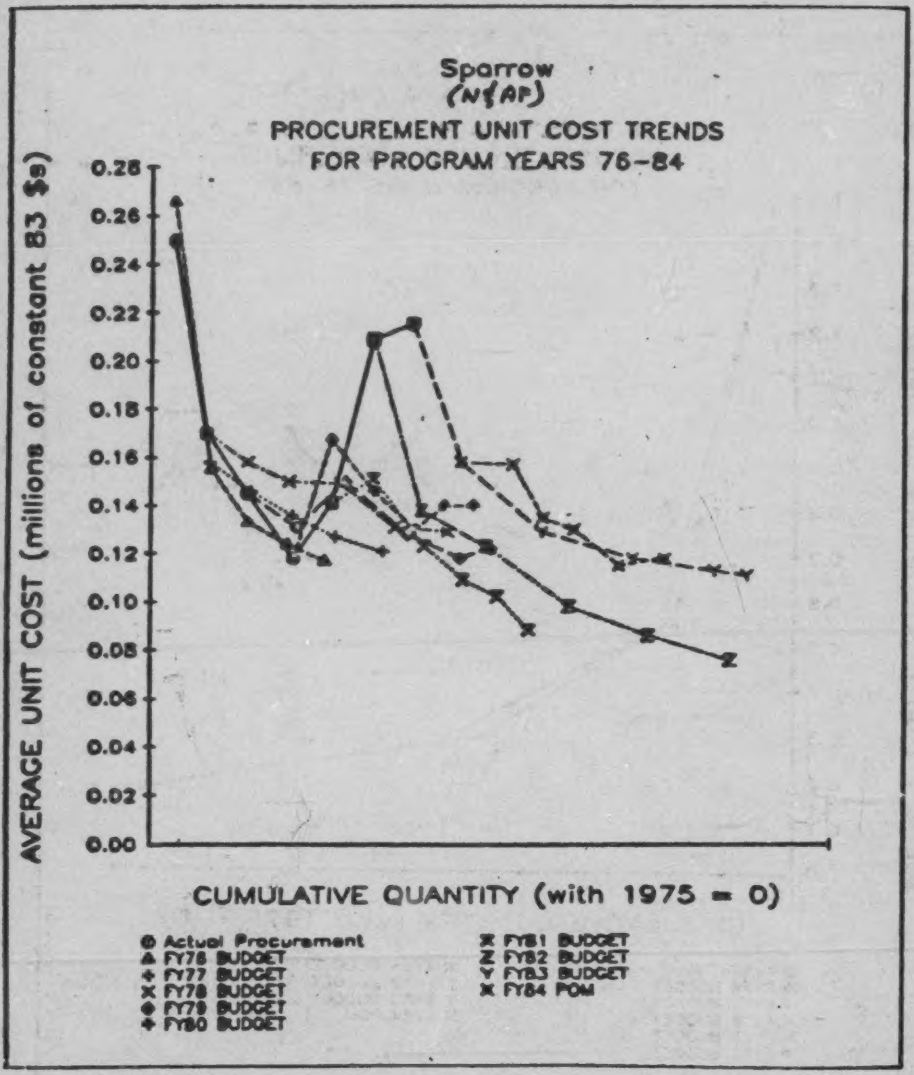
Just to refresh you, I want to show the learning curve again. That is the depiction that we have. When we look at our individual program plans, think of the learning curve, particiularly when we are looking at the preproduction estimates. We are going to flip through, very quickly, individual systems and we are going to look at how the "spaghetti" diagrams change for individual systems.



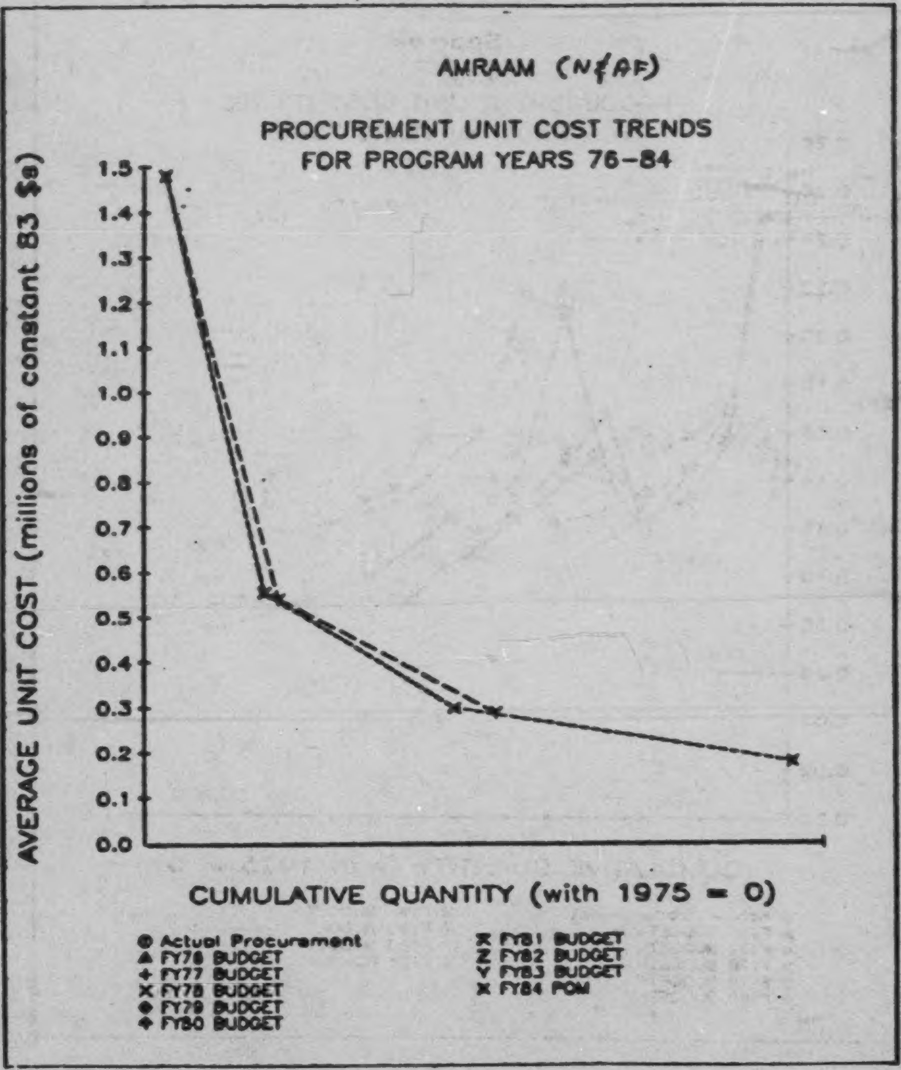
Here is the Sidewinder Missile, it is produced by the Navy and the Air Force. This is a quantity versus cost chart. Here is the initial estimate, or at least it is the earlier estimate, the 1976 estimate. Then you can see here is the cumulative procurement. This is a computer-generated slide, so it is much more difficult to read.

The solid line here is what actually happened. This is the code for the different 5-year programs. The solid line is what has actually happened.

In this data base, I consider the sidewinder the system that we cost out the best. You can see that the solid line is pretty well mixed in with the program plans. Although there was a model change here, it was not projected out here in the earlier estimates, and of course we missed the first estimate considerably.

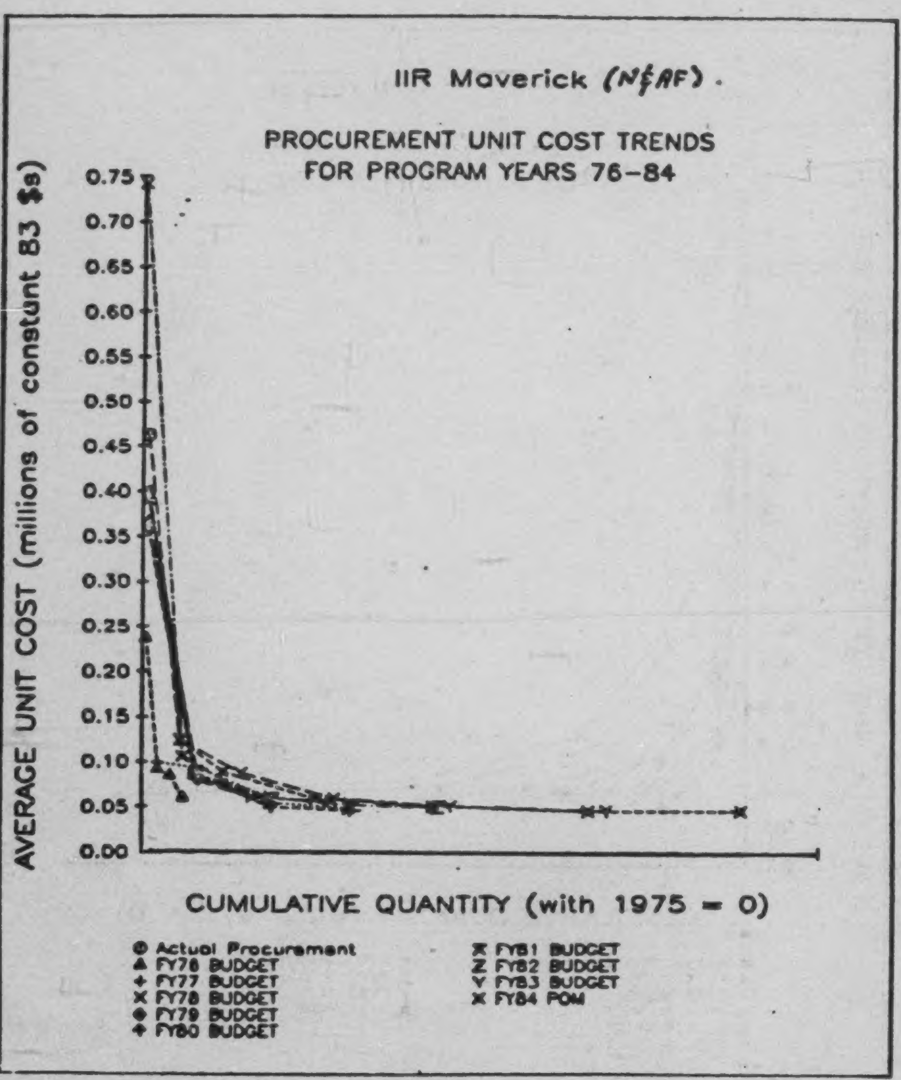


Here is the Sparrow Missile. The solid line is what has actually occurred. These are the projections. The key point here is the instability. You can see the instabilities continuing by comparing the first draft of the 1984 program to the 1983 program.



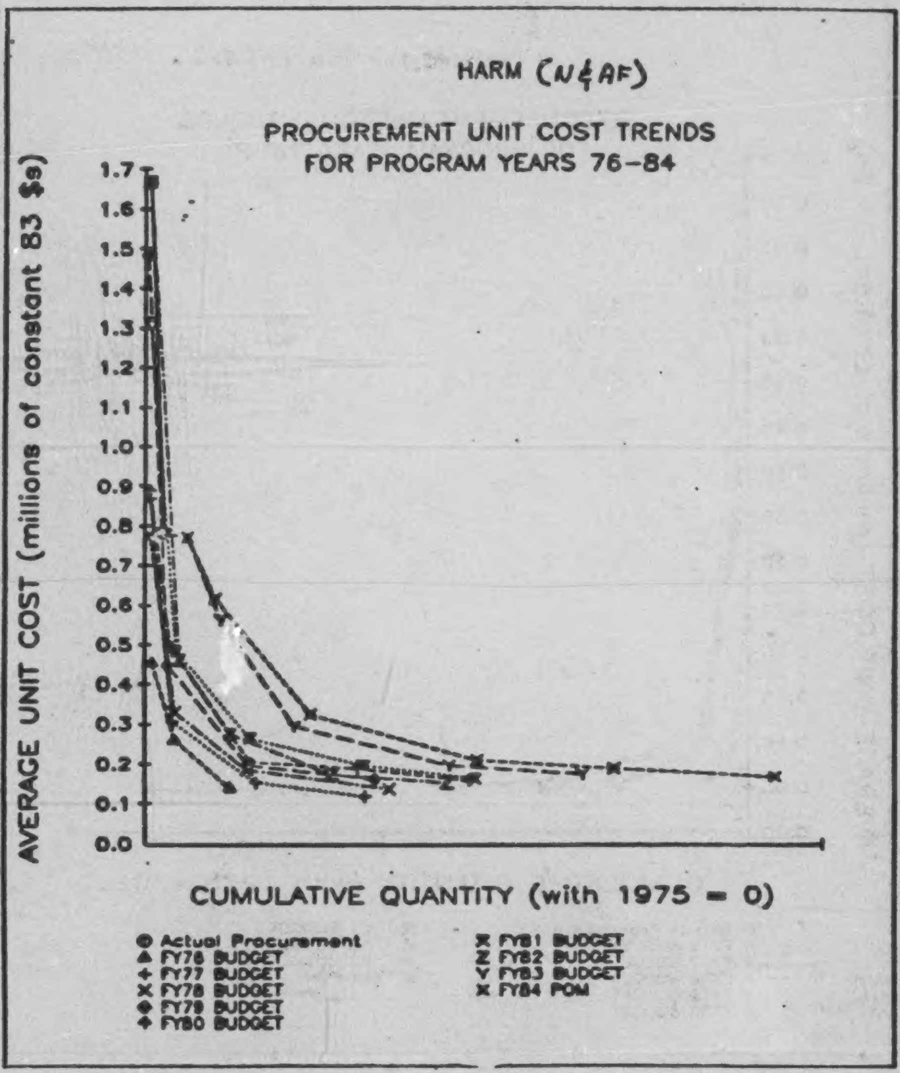
Here is the AMRAAM. This missile has not been produced yet, it is a new air-to-air missile. These are planning numbers and you can see they are fairly consistent, and we are projecting a long-term learning curve. We are assuming over this production buy—which is a considerable buy—in this 5-year plan that there is not going to be any model change. Although in these previous missiles we saw a tendency to change models.

Now, I know of no air-to-air missile that has had only one model. This is, I think, a good example of where we can probably expect a model change downstream. It is a very complex missile.

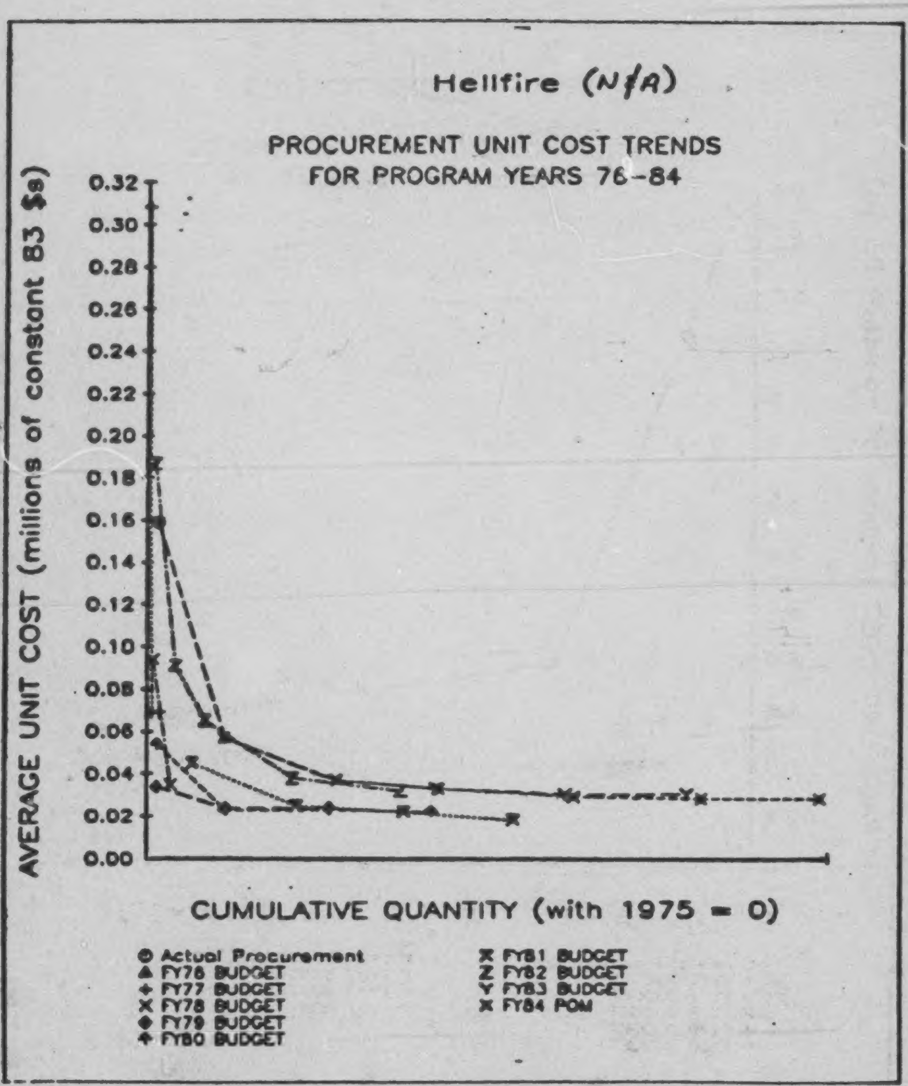


Here is Maverick. Maverick is one of the most interesting samples in the data base, because it has been in the procurement budget since 1976. But we only started buying them in 1982. It has been delayed for a number of reasons over the years. It had some major design changes and innumerable minor design changes. So, as many of you are aware, it is a fairly controversial program.

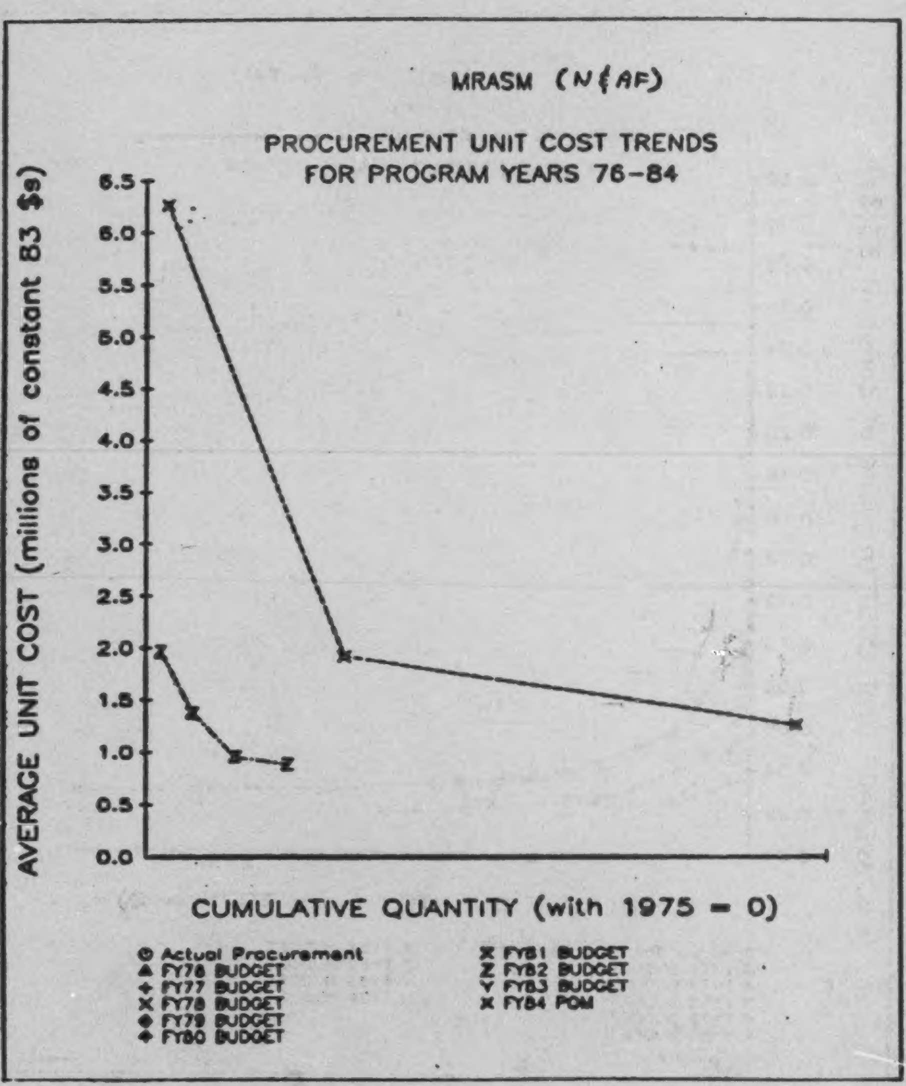
It is interesting that, with all that design instability, you can see that our planning estimates really have not changed much. It turns out, when I look at the second graph of the 1984 plan, we are starting to see a little instability creeping in here.



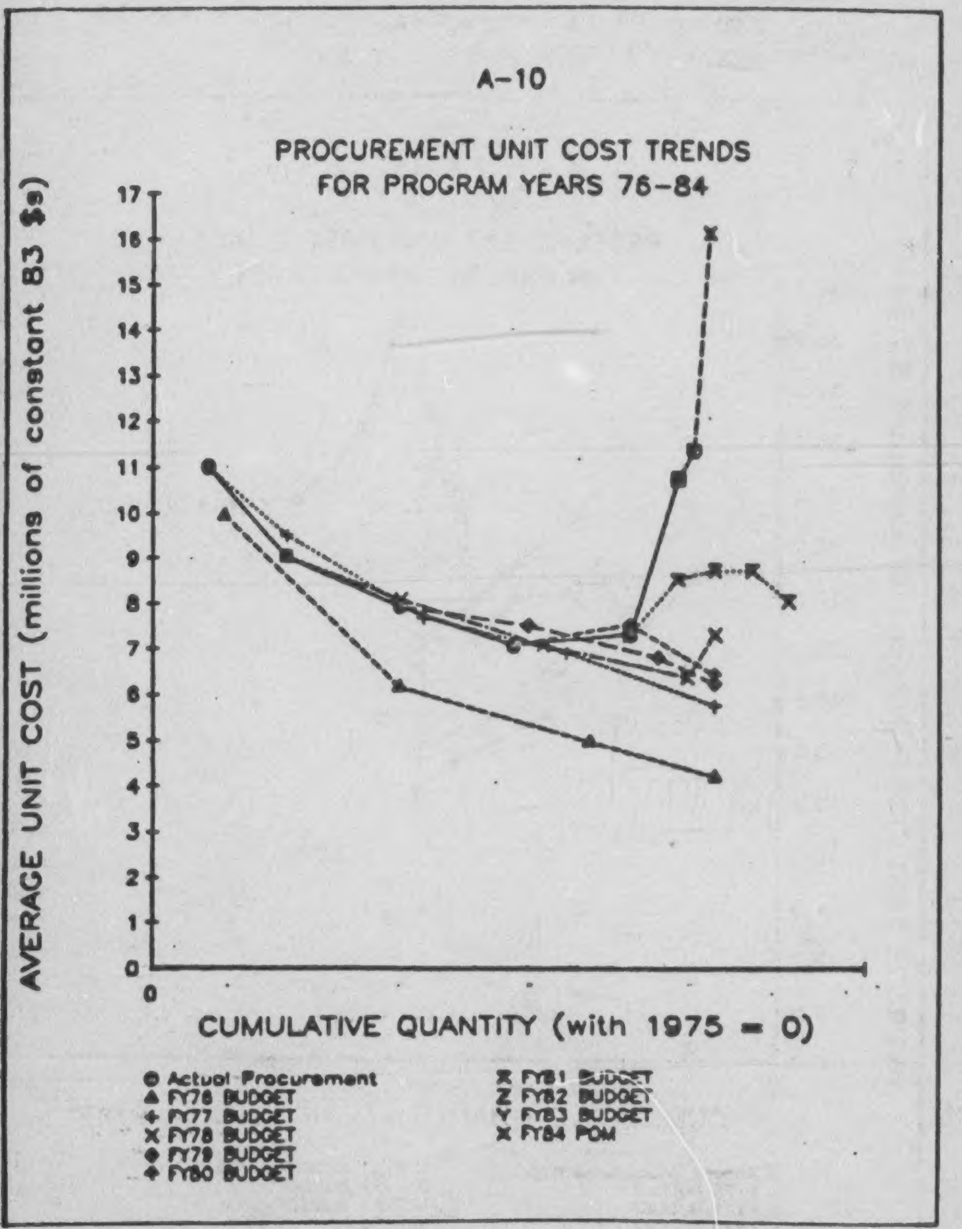
HARM. That is high-speed antiradiation missile, a missile to shoot enemy radars. Again you can see the early estimates and now you can see them gradually going up. This is where we actually are. Originally, at this quantity we were going to be somewhere down there.



Hellfire, is a missile for the Attack Helicopter. This is the only actual point we have. You can see the intitial estimates there, we are raising them but we are still projecting a nice decline.



MRASM, this is a new cruise missile. The early estimate in the 1982 budget was skipped. We skipped it, and this is what is in the 1984 budget.

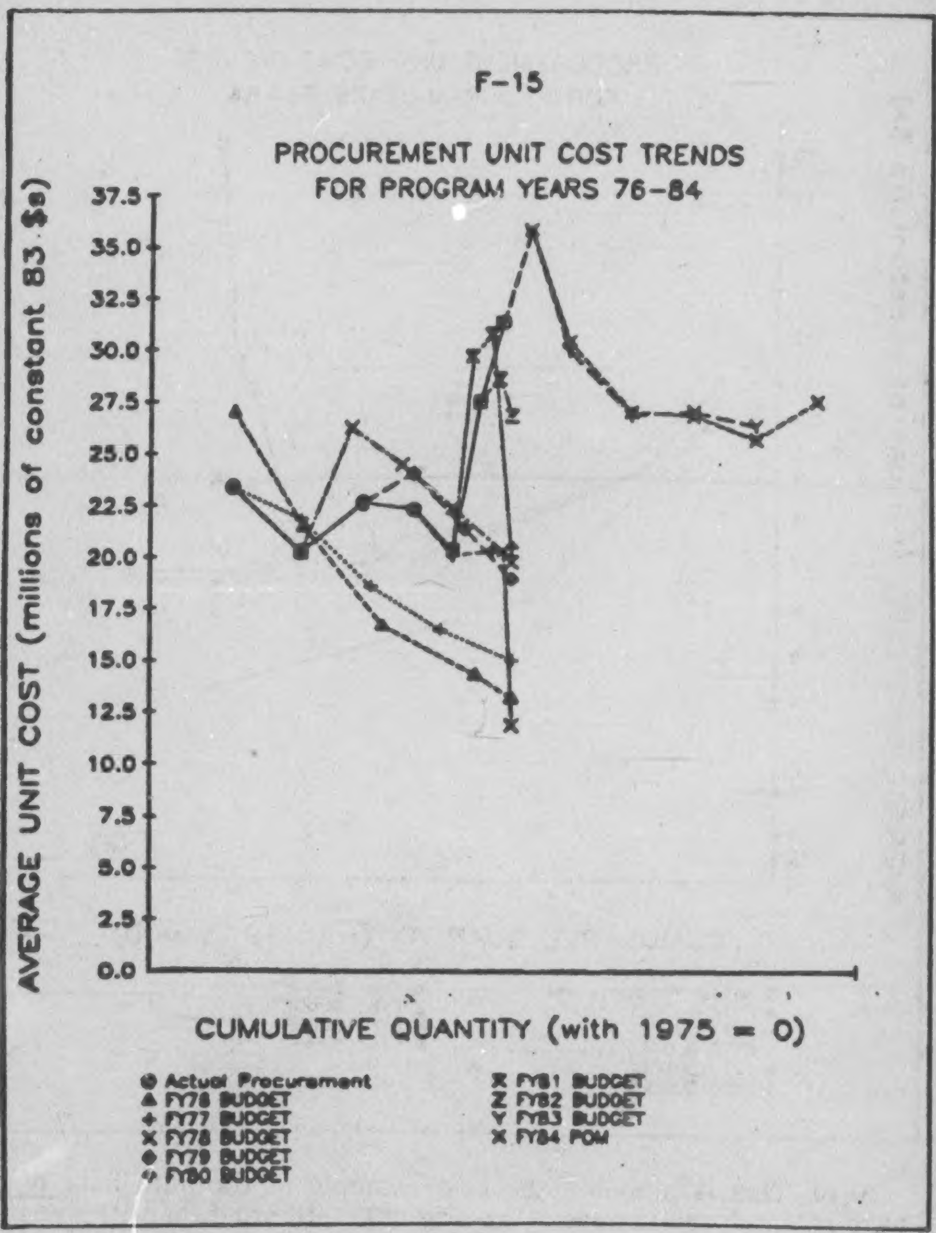


A-10

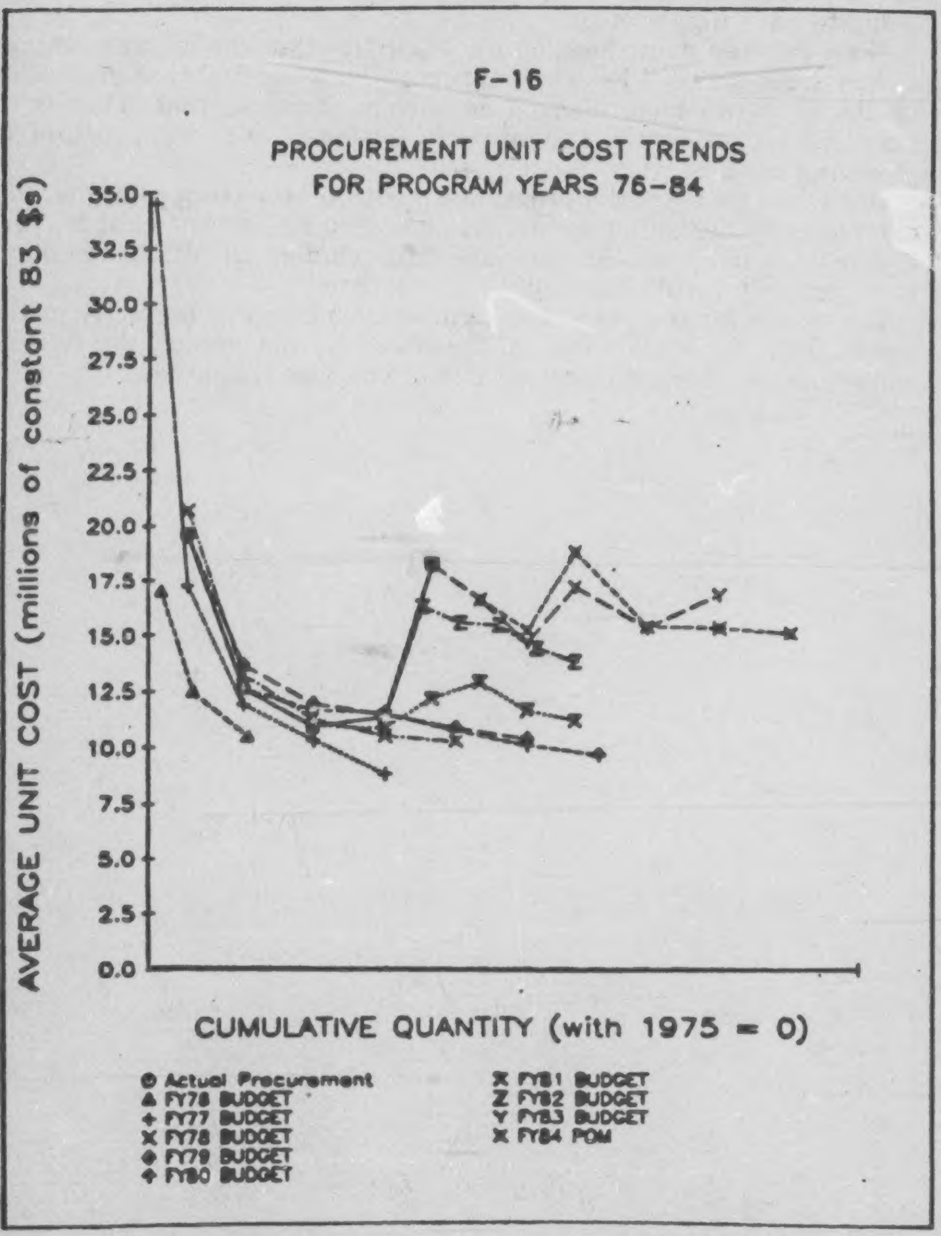
PROCUREMENT UNIT COST TRENDS FOR PROGRAM YEARS 76-84

A-10. This is probably the best example in the data base of a pure rate-induced increase. The original A-10 program here was intended to be produced at very high production rates, 244 a year. The program got cut back to around 150 a year or so. You can see that the costs went down pretty much as we projected, it is just that we shifted the curve up. That is caused by reductions in production rate.

Of course here, where we cut the program, the costs naturally are going to go up. That is very low-rate production and that is exactly what you would expect to see.



F-15. The original estimate that we calculated is here. This is the solid line of what has happened. This is what we projet is going to happen.



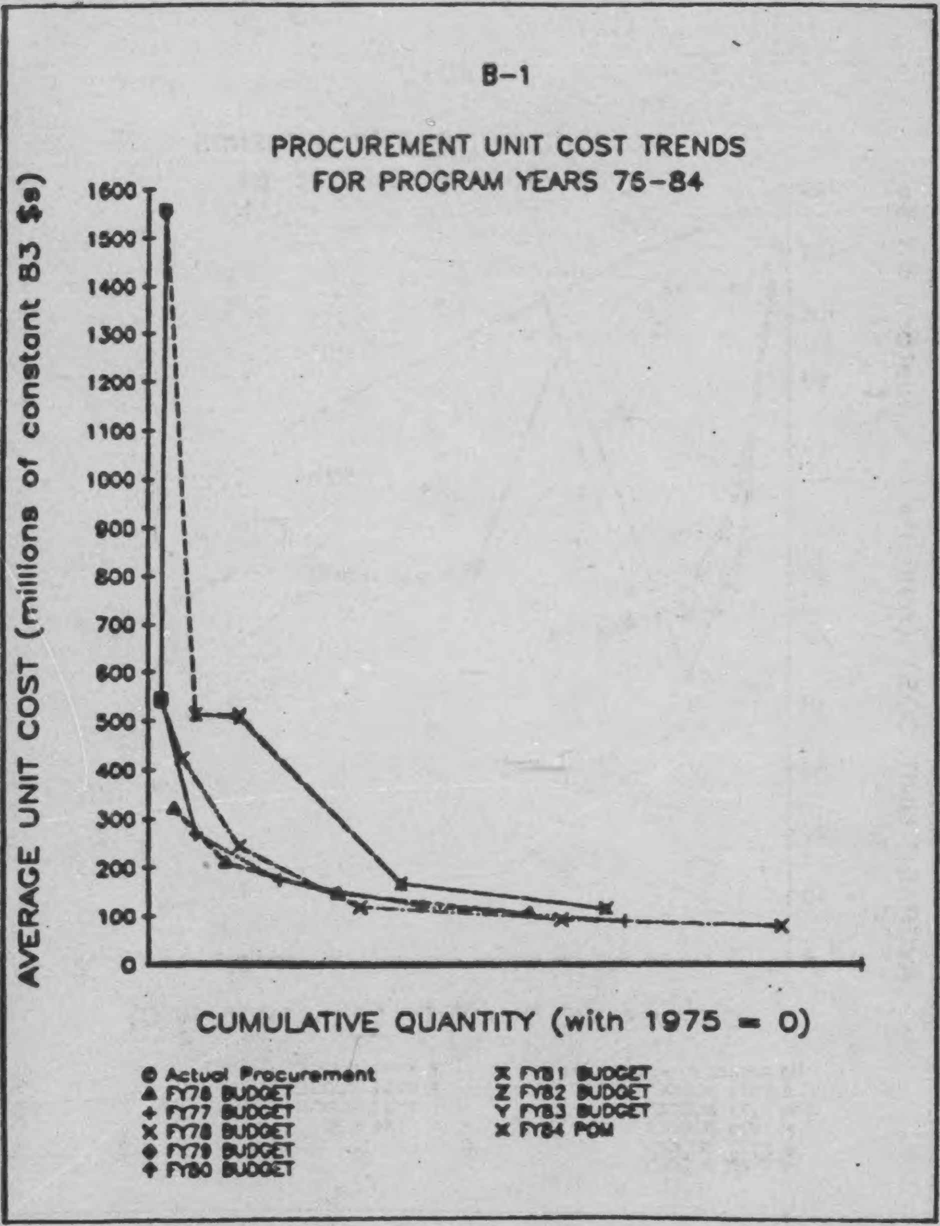
F-16. The solid line is what actually happened. Here is where we are. These are the early projections. Now, this is a good example of where we made a conscious decision to change the design of the plane. The F-16 is probably one of the best examples—with the exception of the Sidewinder—of a well-controlled cost profile, at least up to this point.

The first 650 of these planes or so were bought under a multinational production agreement that had fairly strong fixed-price contract provisions on it. You can see, we marched down the cost curve pretty well. But now we are changing the design and we are going to have higher costs.

Now, the key point here is, we originally thought we were going to buy 1,200 or 1,300 F-16's at this cost. Now we find that after 650 or 700 or so we have made a decision to increase that. That is a very normal thing in the aircarft business. We are constantly changing designs.

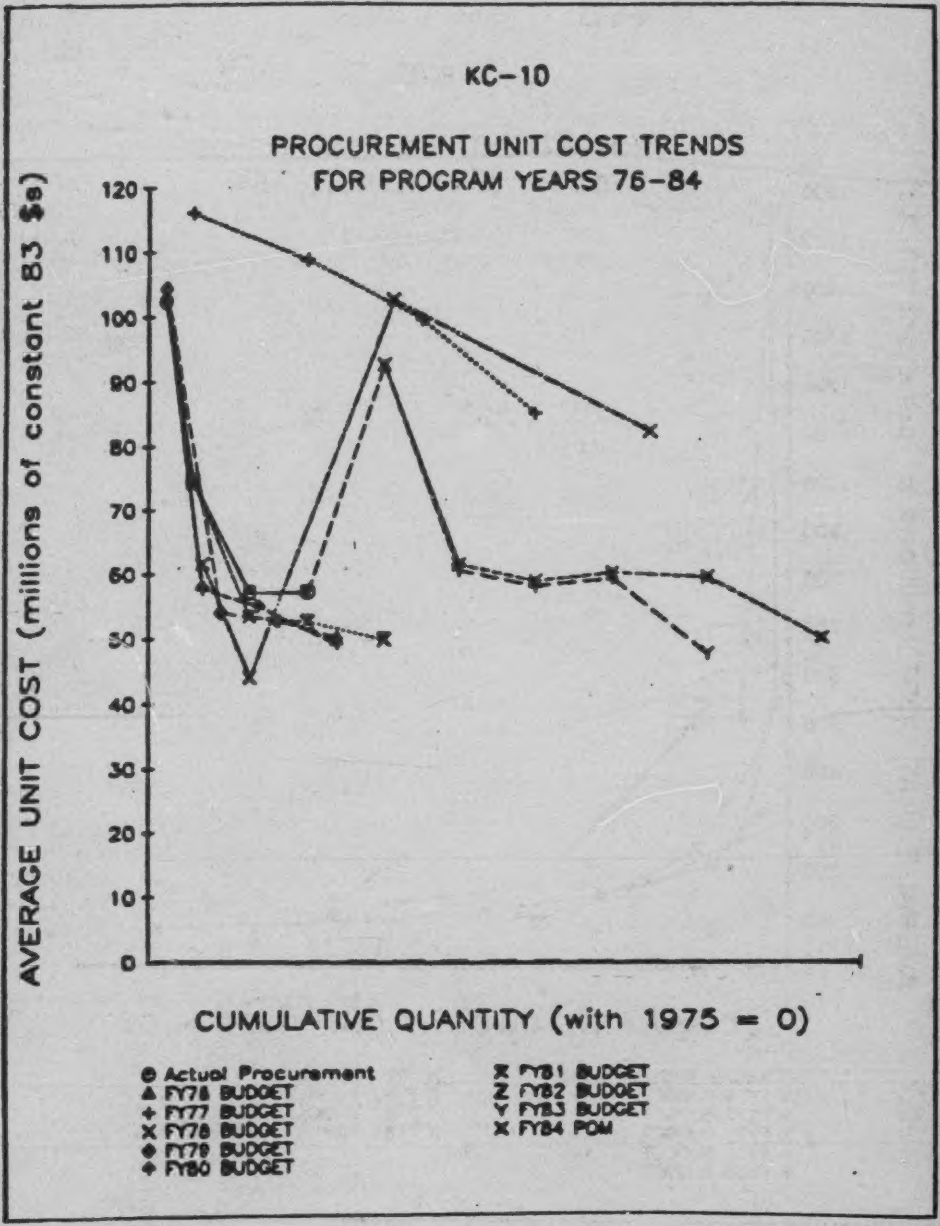
But when we start the program up with a projection like this, we are basically assuming we are not going to make that change, yet it is a standard procedure to make those changes. That change may be a perfectly justifiable change in this case.

Let us say for the sake of argument the change is perfectly justifiable. Still, the simple fact is, our plans did not predict the future consequences of our current decision to change the design.

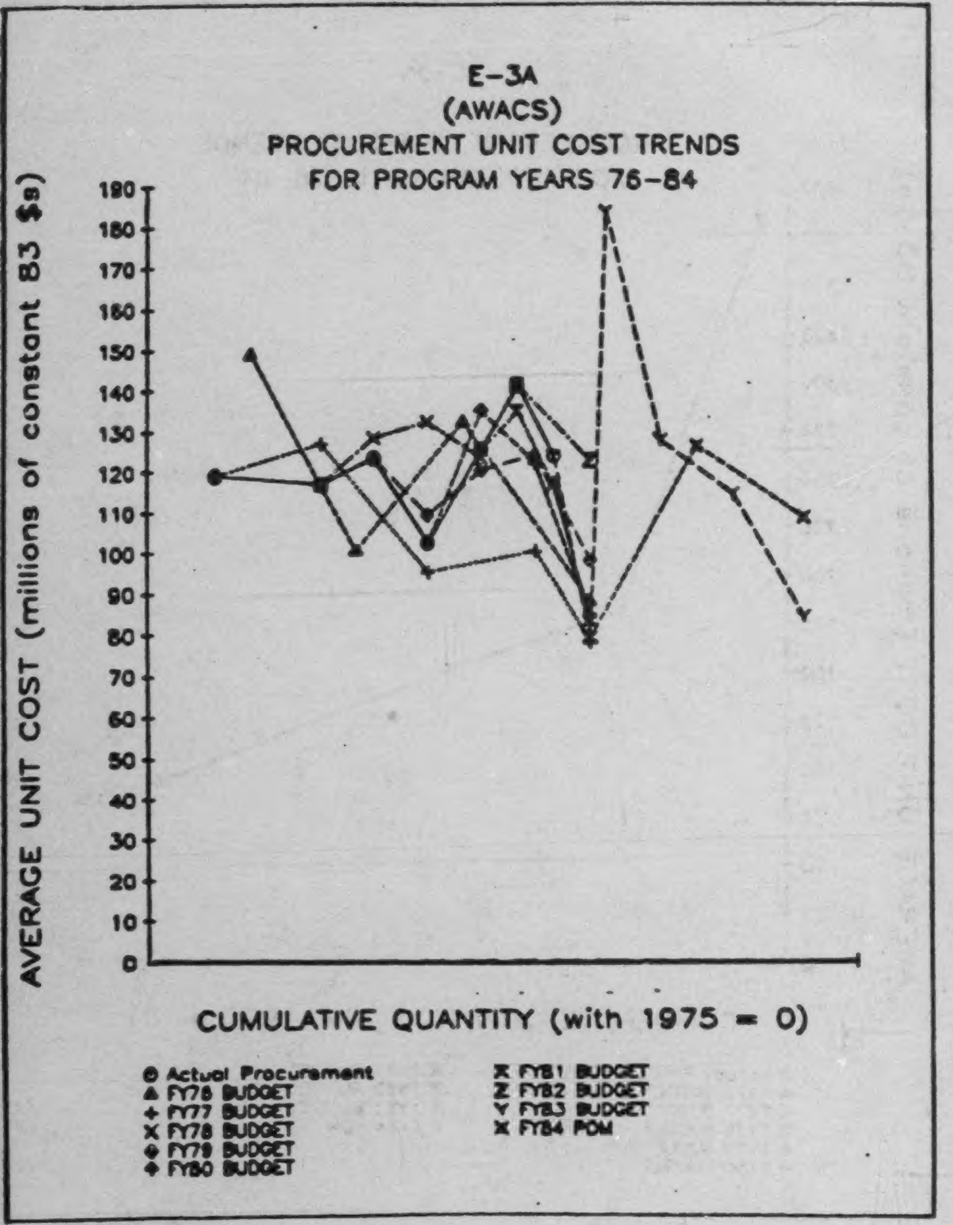


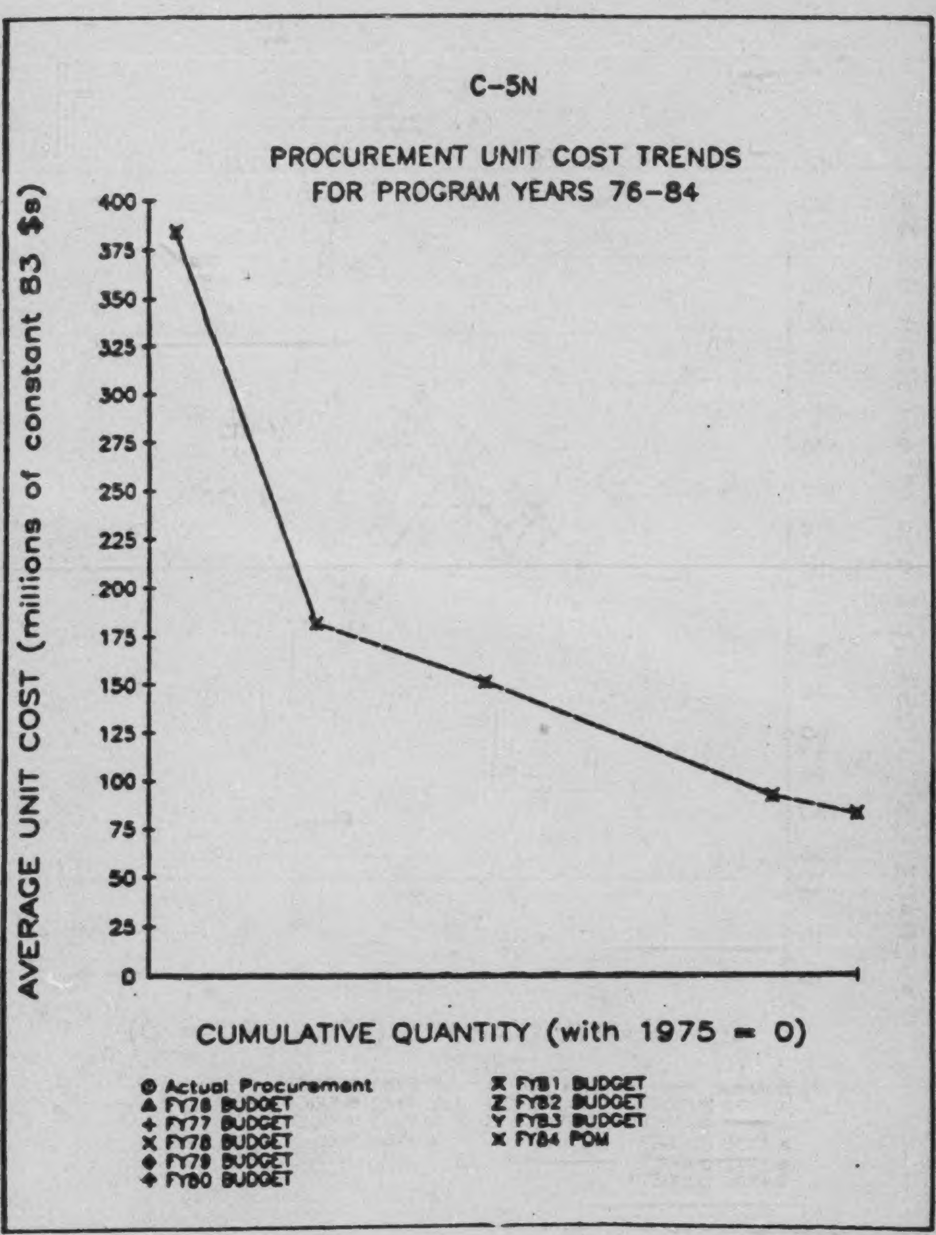
Here is the B-1. This is the B-1A program here, and these are the four B-1A-s we bought. Here is the B-1B that we bought in 1972. This is the 1983 cost, 1984 cost, 1985 cost, and 1986 cost.

Now, when I showed you the 75-percent decline example, we went from here to there in our example. I basically said it would go from there to about there, level, straight; would go from here like that. You saw what difference it made.

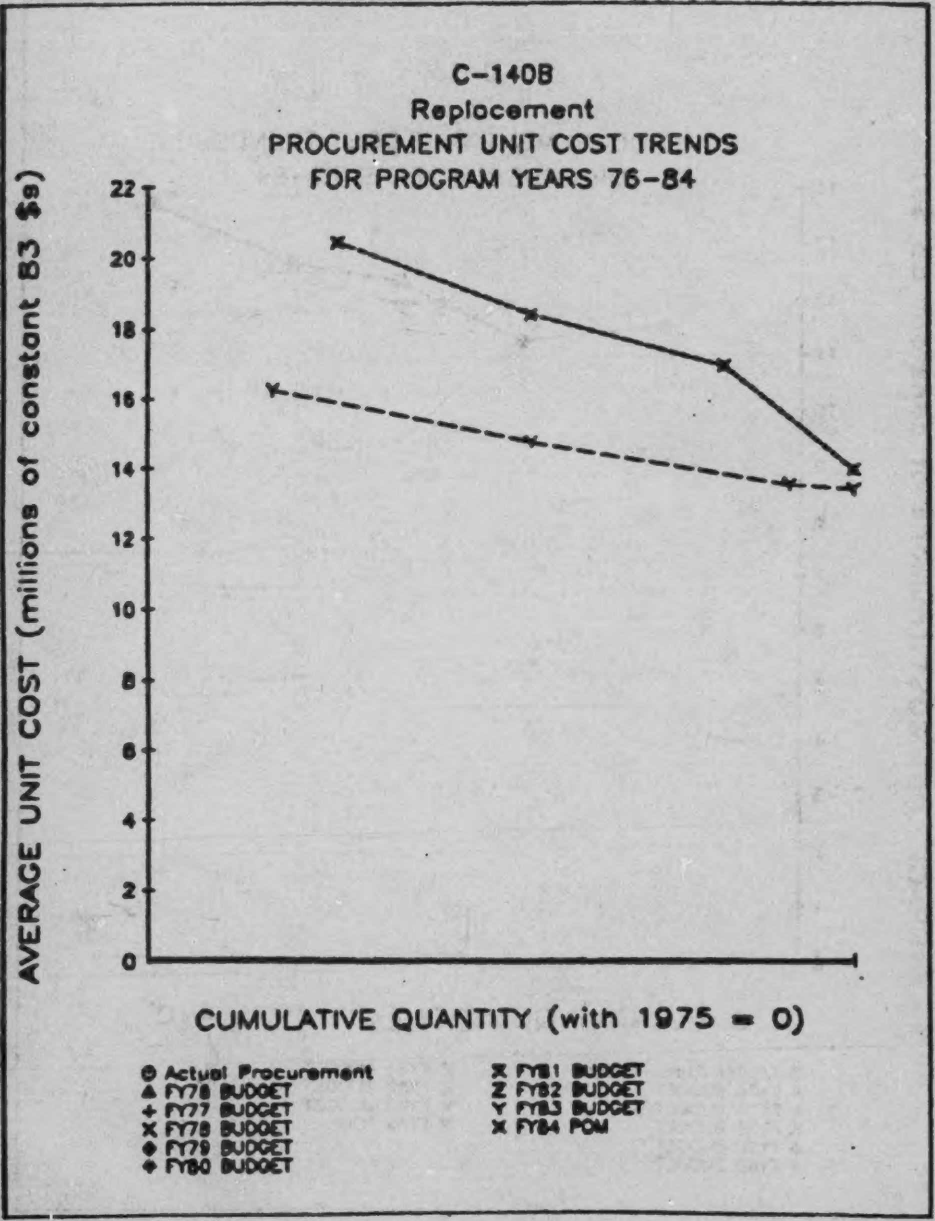


KC-10. The key thing here is to remember when we are looking at these that these individual program costs are the basic building blocks of our 5-year plans. You can see them changing from year to year.


E-3A
(AWACS)
PROCUREMENT UNIT COST TRENDS
FOR PROGRAM YEARS 76-84
AVERAGE UNIT COST (millions of constant 83 $s)
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
CUMULATIVE QUANTITY (with 1975 = 0)
Actual Procurement
FY76 BUDGET
FY77 BUDGET
FY78 BUDGET
FY79 BUDGET
FY80 BUDGET
FY81 BUDGET
FY82 BUDGET
FY83 BUDGET
FY84 POM

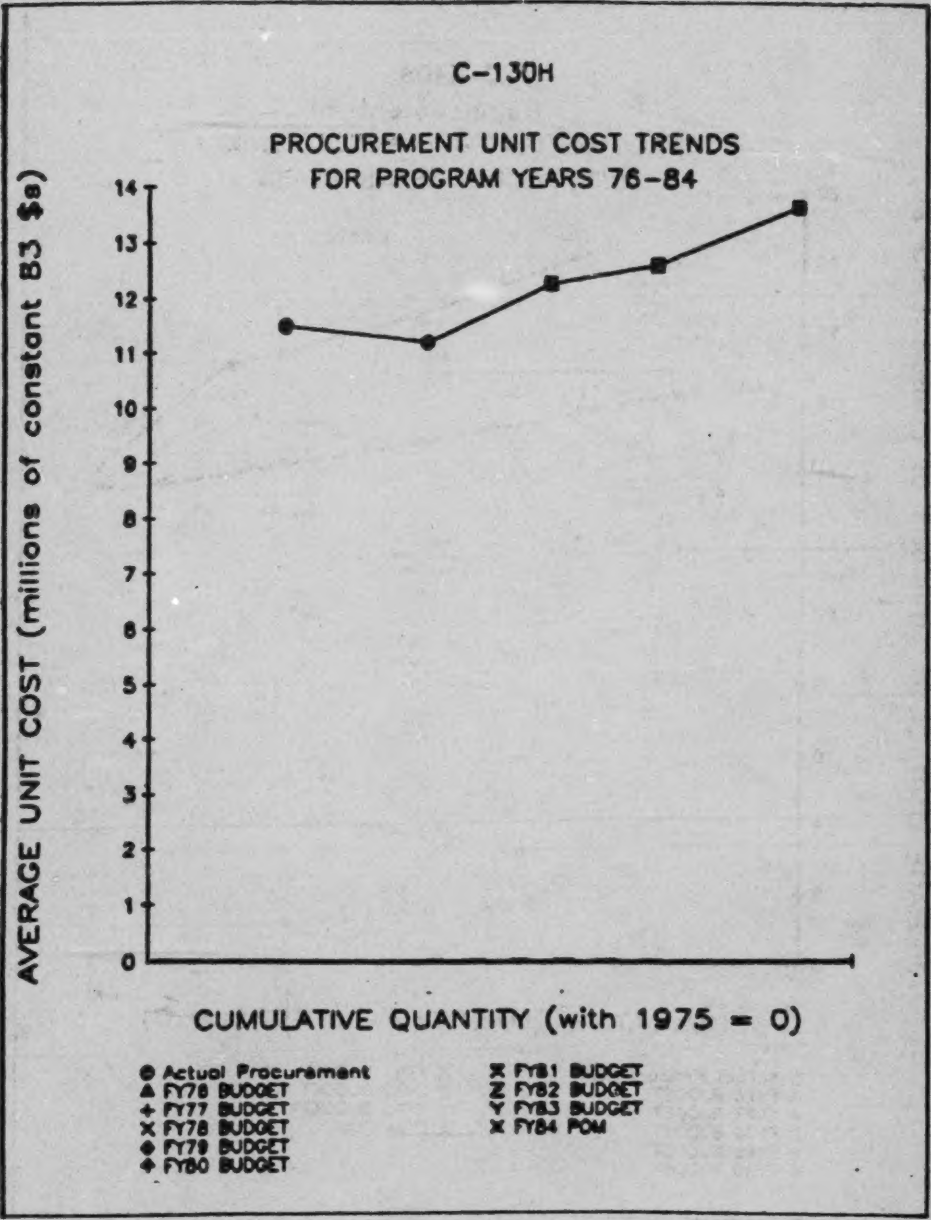


AWACS C-5. This is two budgets, it is the 1980-83 budget and the first draft of the 1984 budget, they are laid right on top of each other. Of course, we do not have the data on it yet. This is typical of a planning number. We expect things to behave like this. When we get actual data, they tend to change.

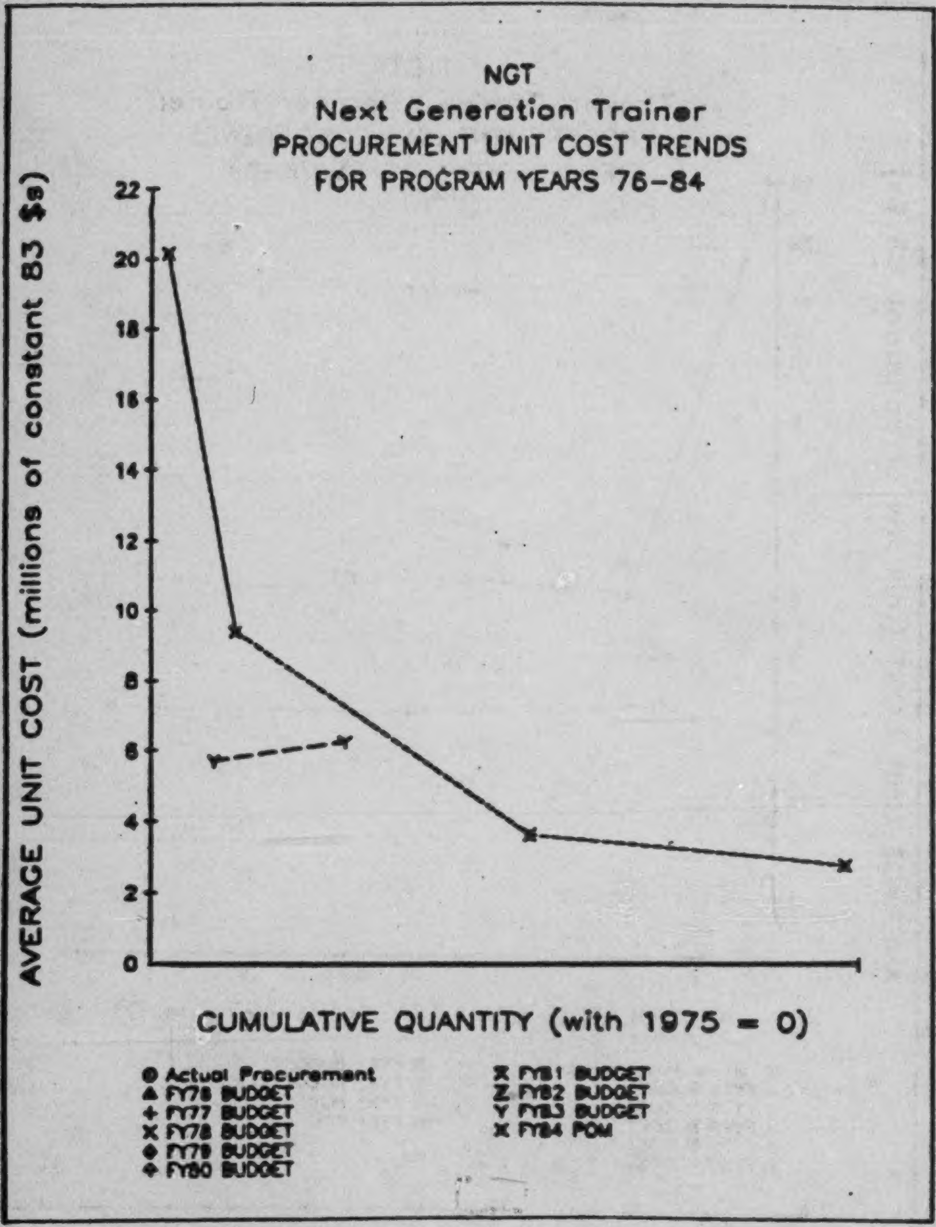


C-140B replacement. Here is the fiscal year 1983 estimate; here is the first draft of the fiscal year 1984 estimate.

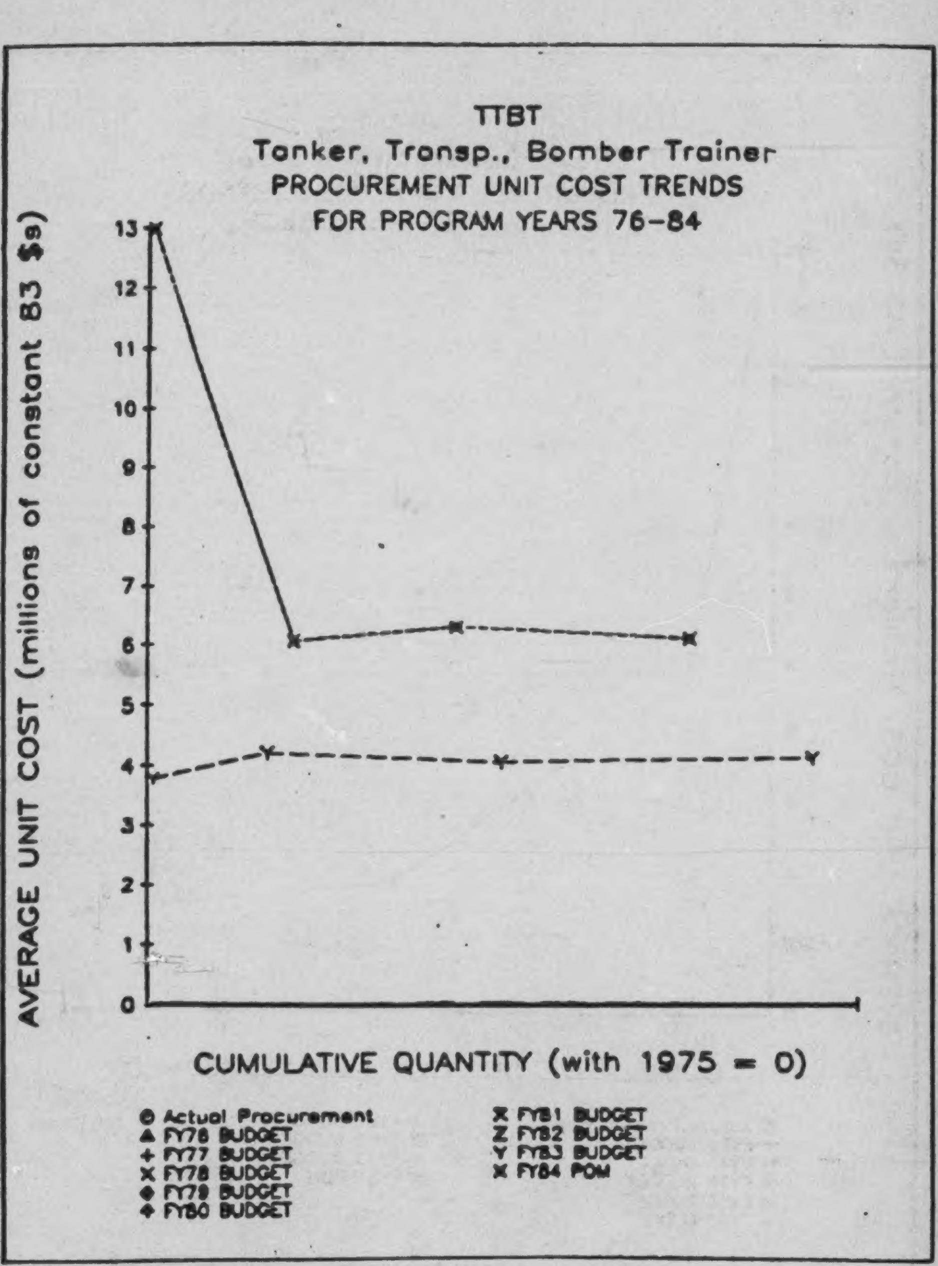
Any time I said "fiscal year 1984" before, I am talking about the first draft—just for the record—the POM; the May estimate.



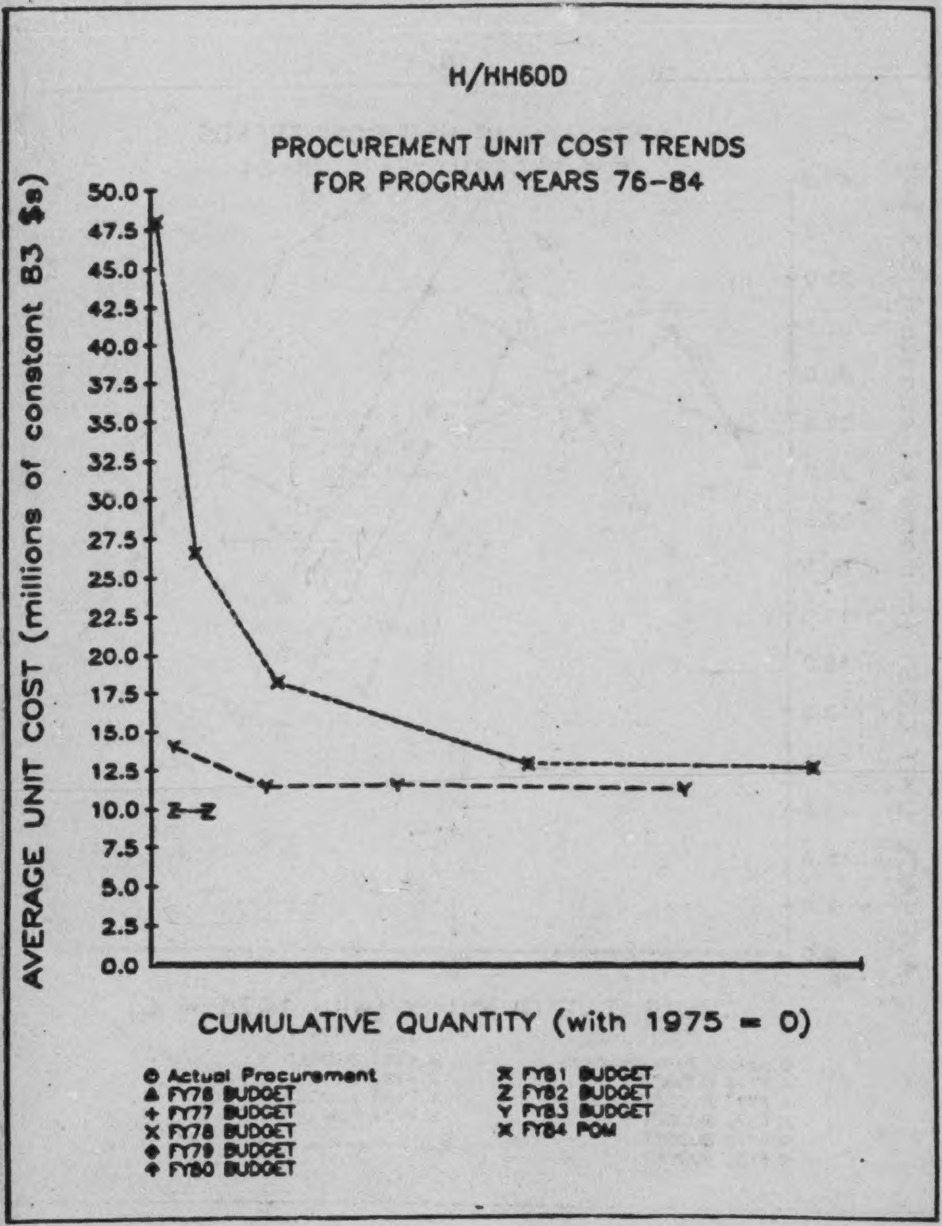
Here are the C-130's that we buy each year.



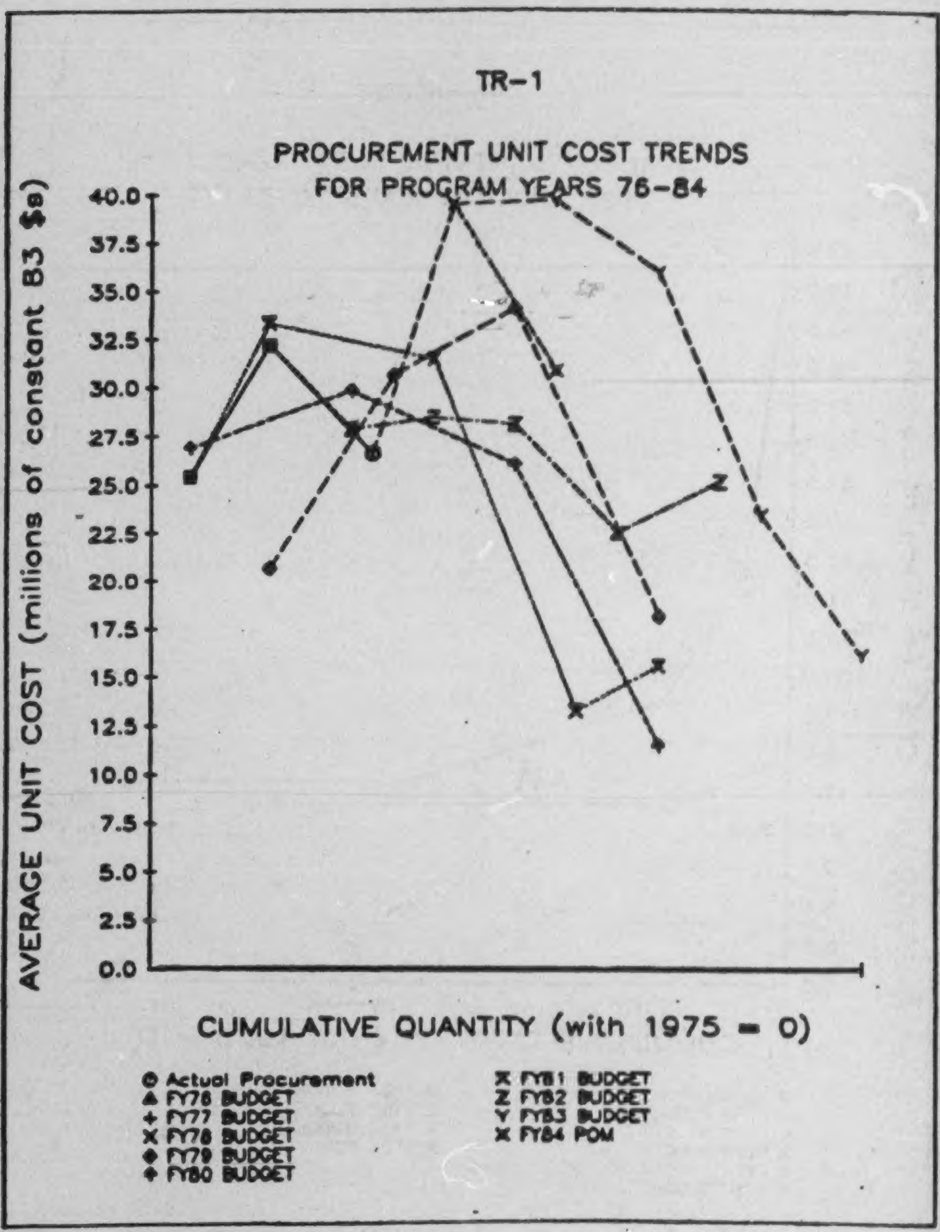
The next generation trainer, the 1983 estimate, the 1984 estimate. Again, these are planning numbers, no real data. The reason I am showing you the planning numbers is because it is important to realize that we are expecting these long declines to come in over the years. When we look at our force structure projections over the next 5 years, they are all based on these cost declines.



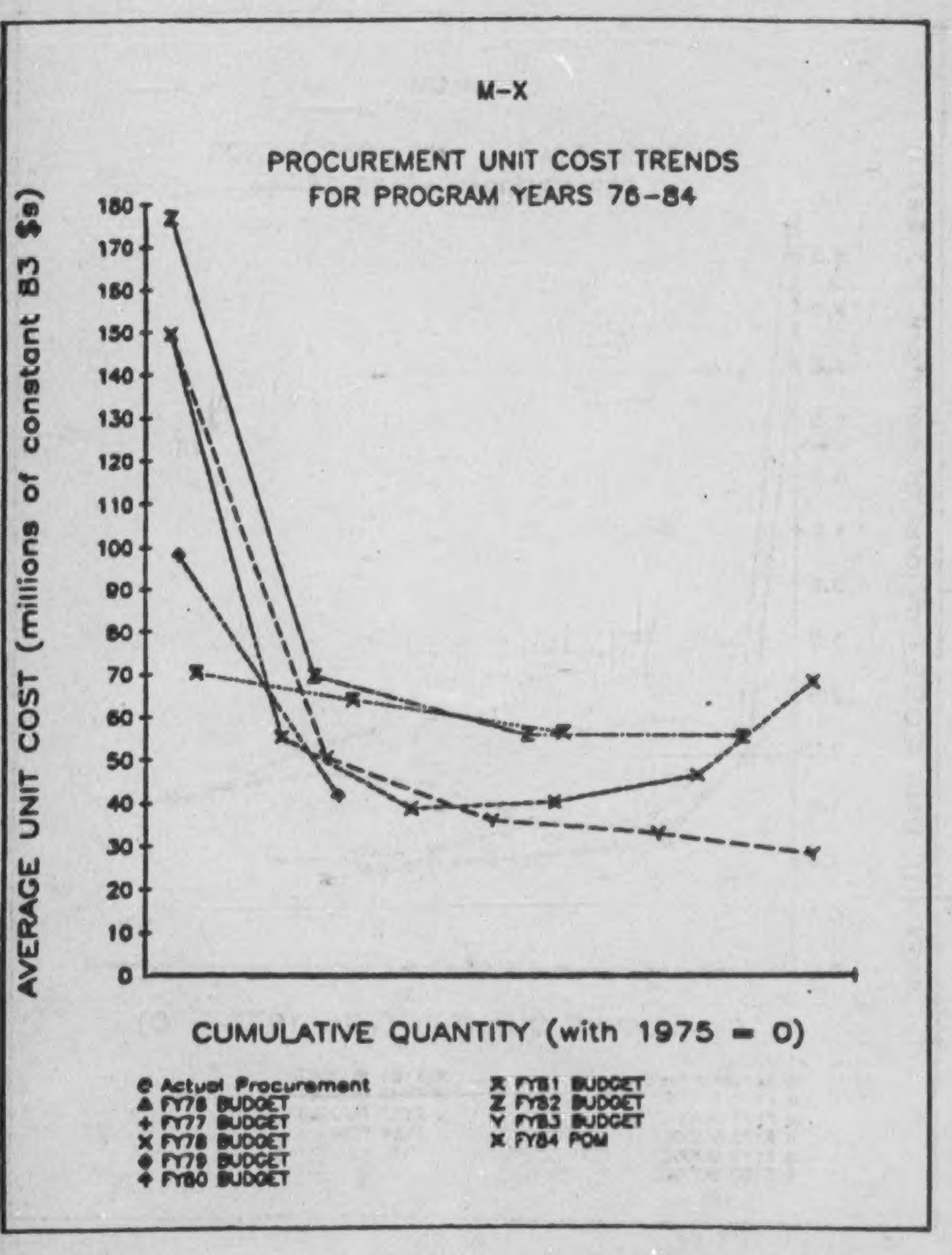
Here is the tanker transport bomber trainer, the simulator. You can see the increase between the 1983 and 1984 programs.



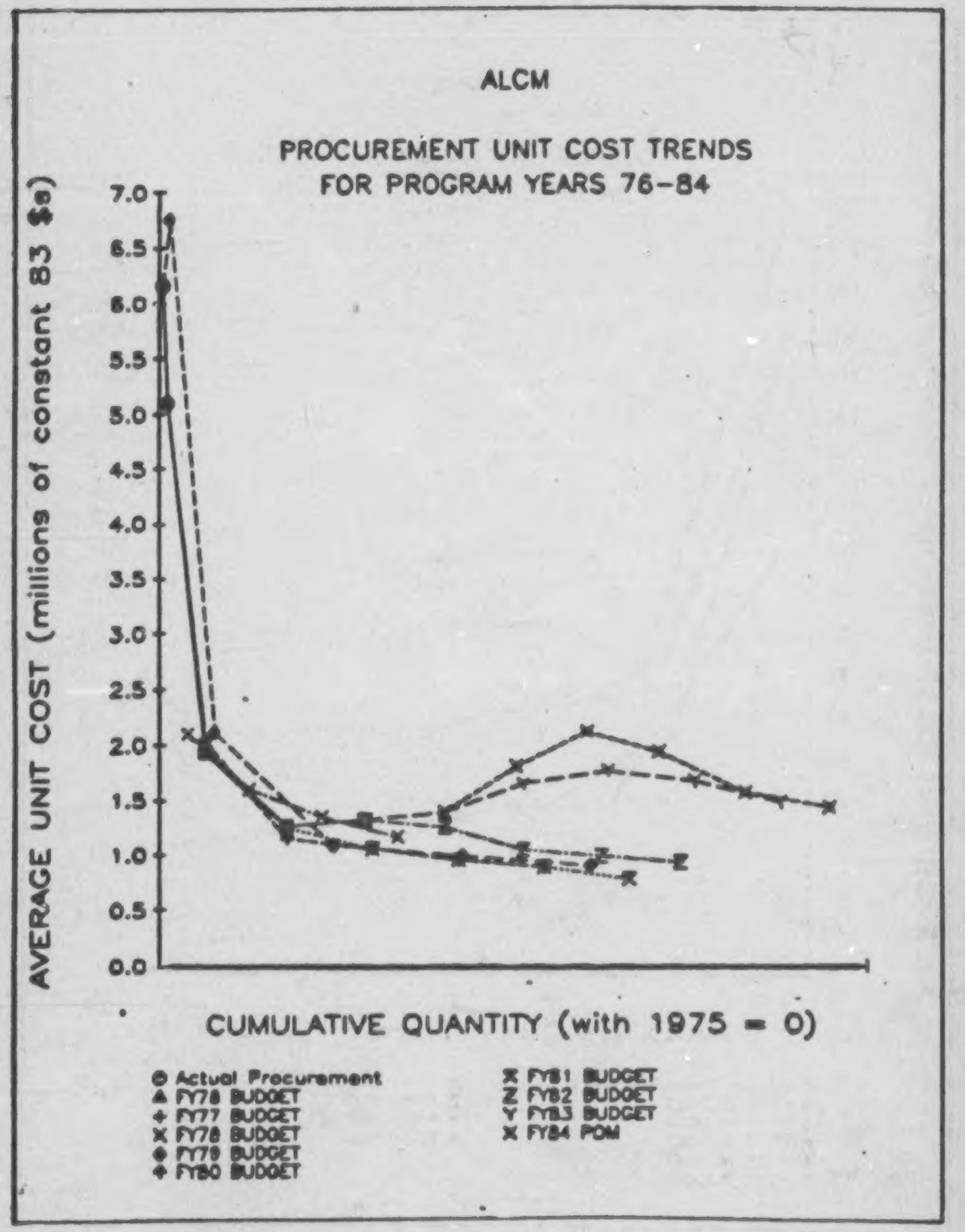
HH-60D, a helicopter for the Air Force. The 1983 estimate, the 1984 estimate. You can see the 1984 estimate is higher.



TR-1. Here is our 5-year plan on the TR-1. I do not mean that lightly. This is how our decisions are changing from year to year. The instability is a very serious thing.



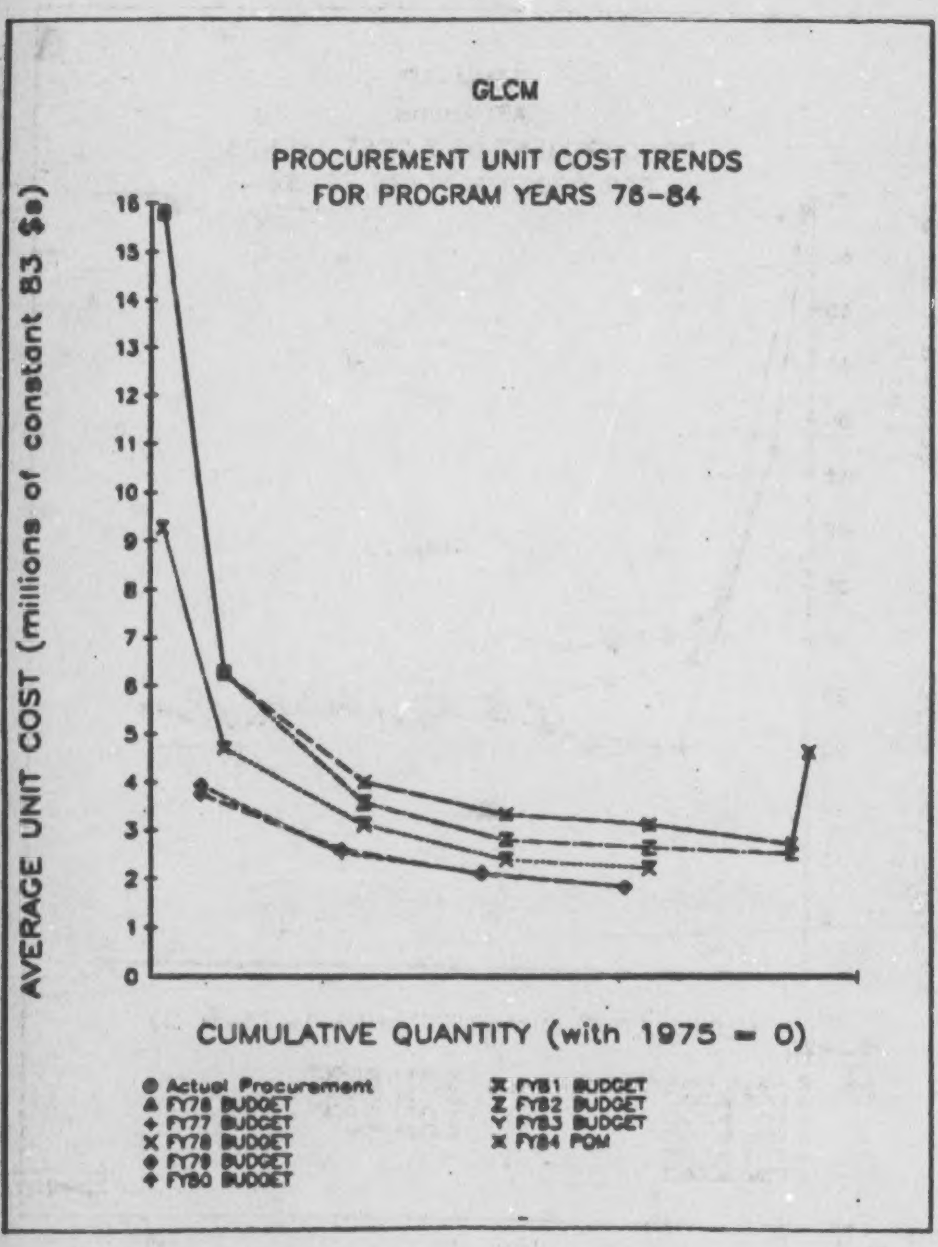
MX. Here is the 1983 program and the 1984 program. It is my understanding that this data was prior to the decision to go with Dense Pack. So, I do not think this reflects Dense Pack although I may be wrong.



Air-launch cruise missile. Here are the early estimates. Here is where we are, and that is where we are going, compared to the early estimates.

Another thing I forgot to bring out is that you have to take into account the scale effect. These are computer-generated slides and the scale is set by the largest number. In this case it is here.

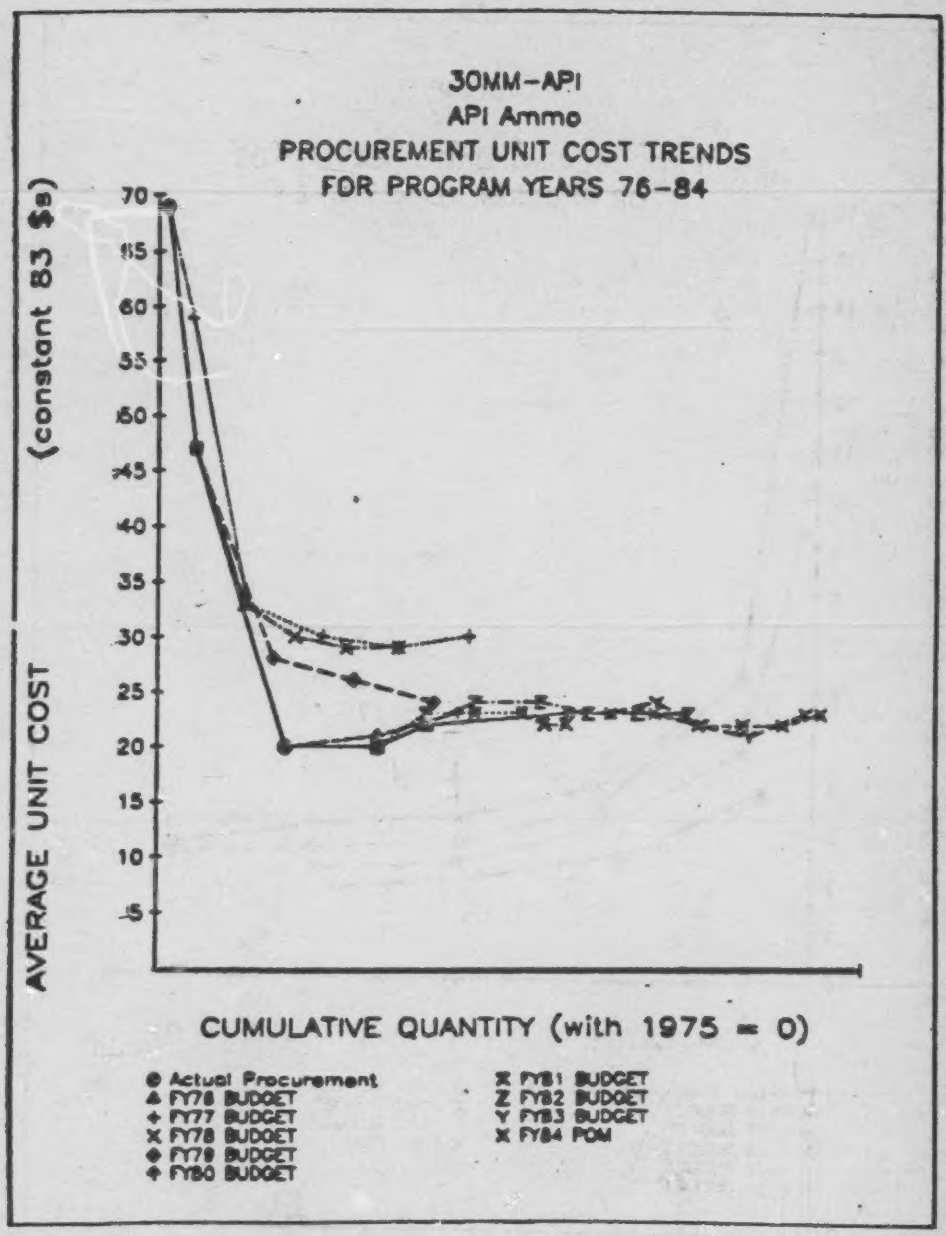
So, you can have a large percentage increase here and it might look small. That is simply because of the scale. This is about a 20-percent increase.



GLCM

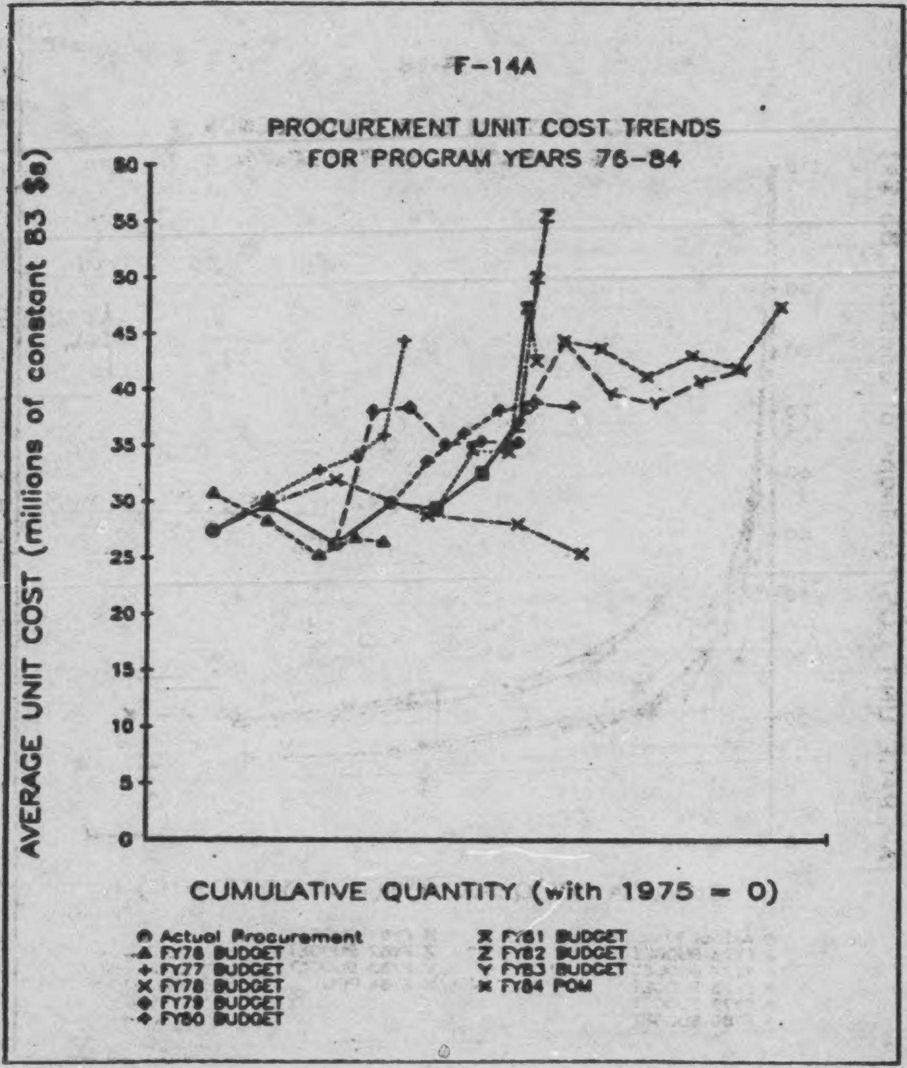
PROCUREMENT UNIT COST TRENDS FOR PROGRAM YEARS 76-84

GLCM, ground-launch cruise missile. That is where we are. These are the early estimates.



Thirty-millimeter ammunition. this is a low-cost, simple weapon. This is acutally an example where we came in under cost and ahead of schedule. It is also a good example of where we had a competitive procurement.

Let us go to the Navy. F-14.



Here is the F-14. The solid line here is what actually has happened, and then these are the program changes.

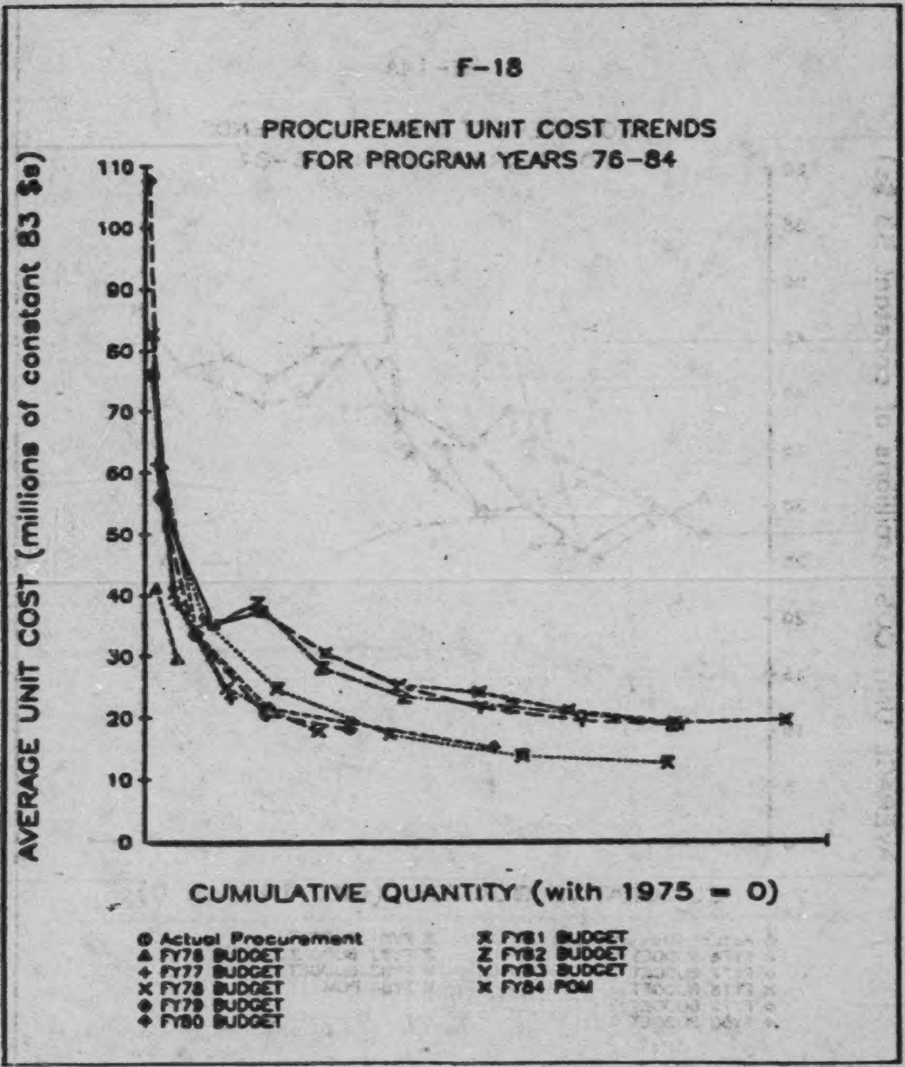
Senator METZENBAUM. Mr. Spinney, do all of your charts show just about the same thing?

Mr. SPINNEY. I think you will want to see some more, sir, the shipbuilding in particular.

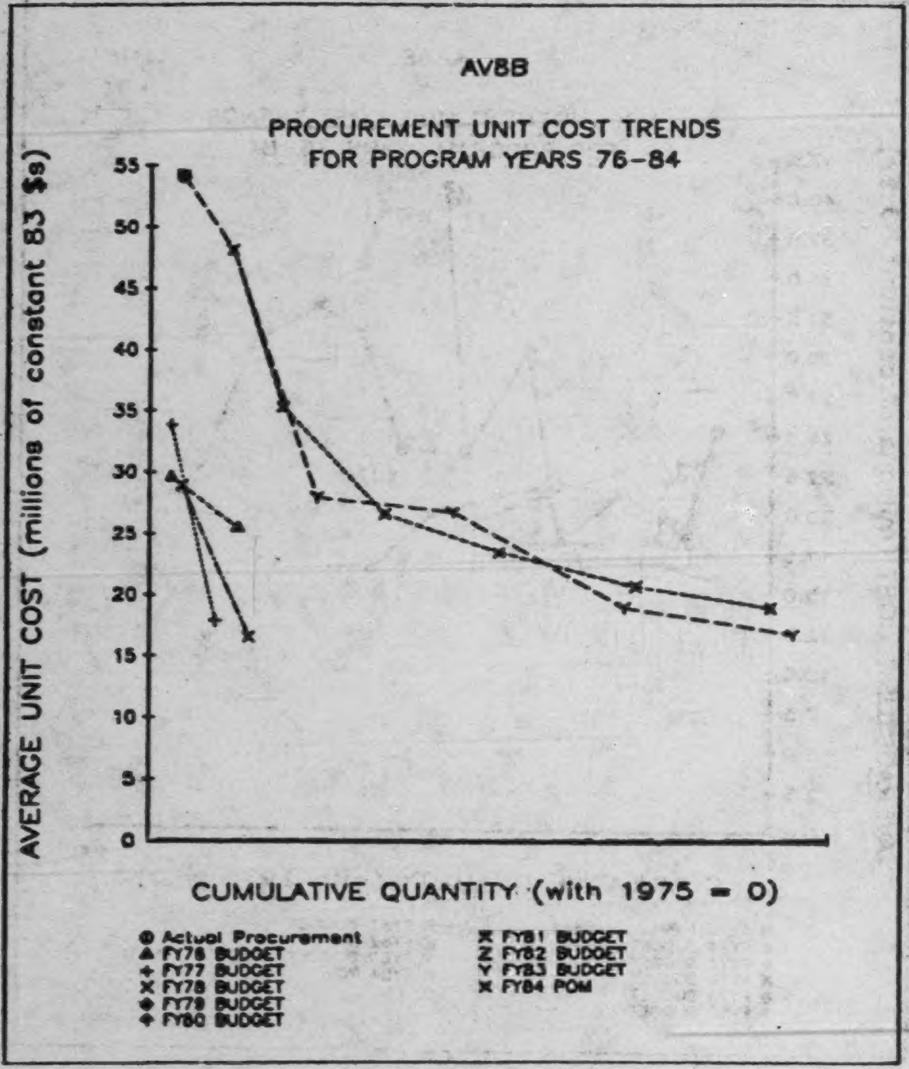
Chairman TOWER. I think we will see the whole thing.

Mr. SPINNEY. Sir, it is important. It is important to understand the breadth of this phenomenon I am trying to describe.

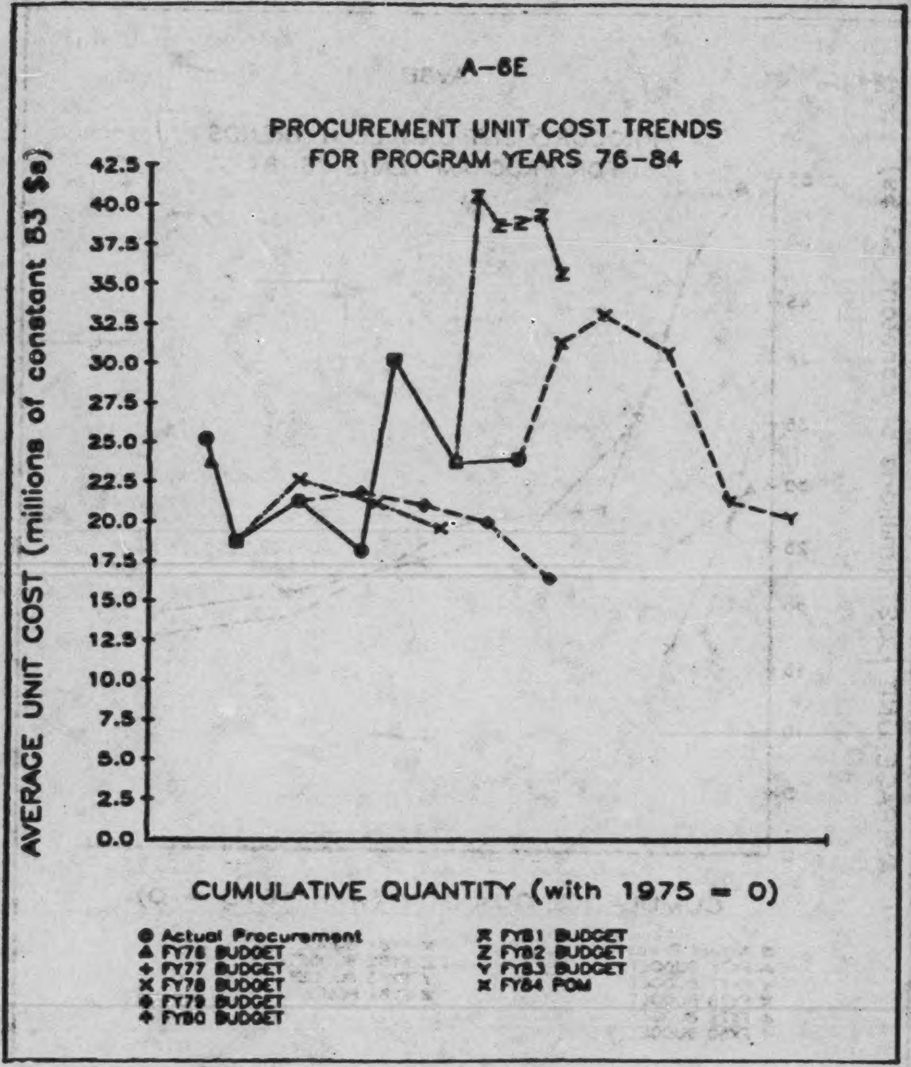
It will not be much longer.



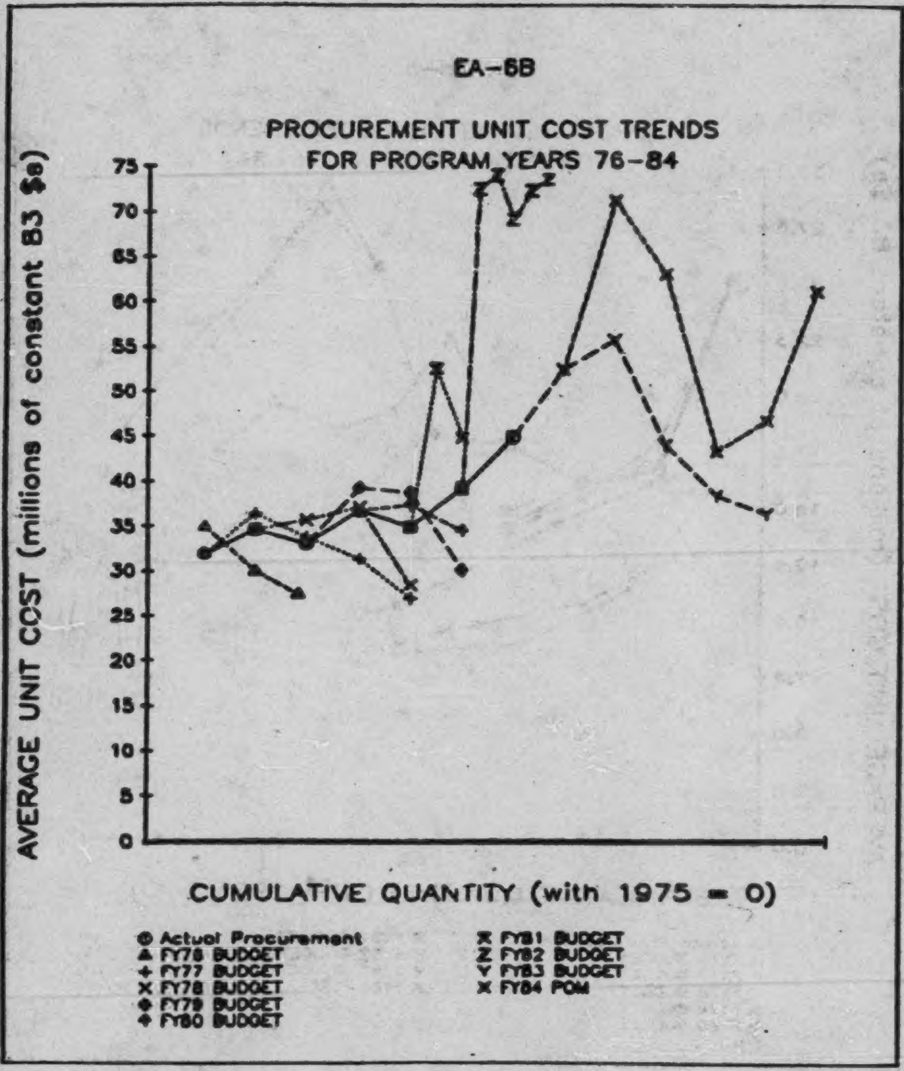
F-18. Here is a good example of a preproduction learning curve, or the effects of a preproduction learning curve, and it is compared to what has actually happened. Here is where we are, that is where we said we would be at this point on the learning curve.



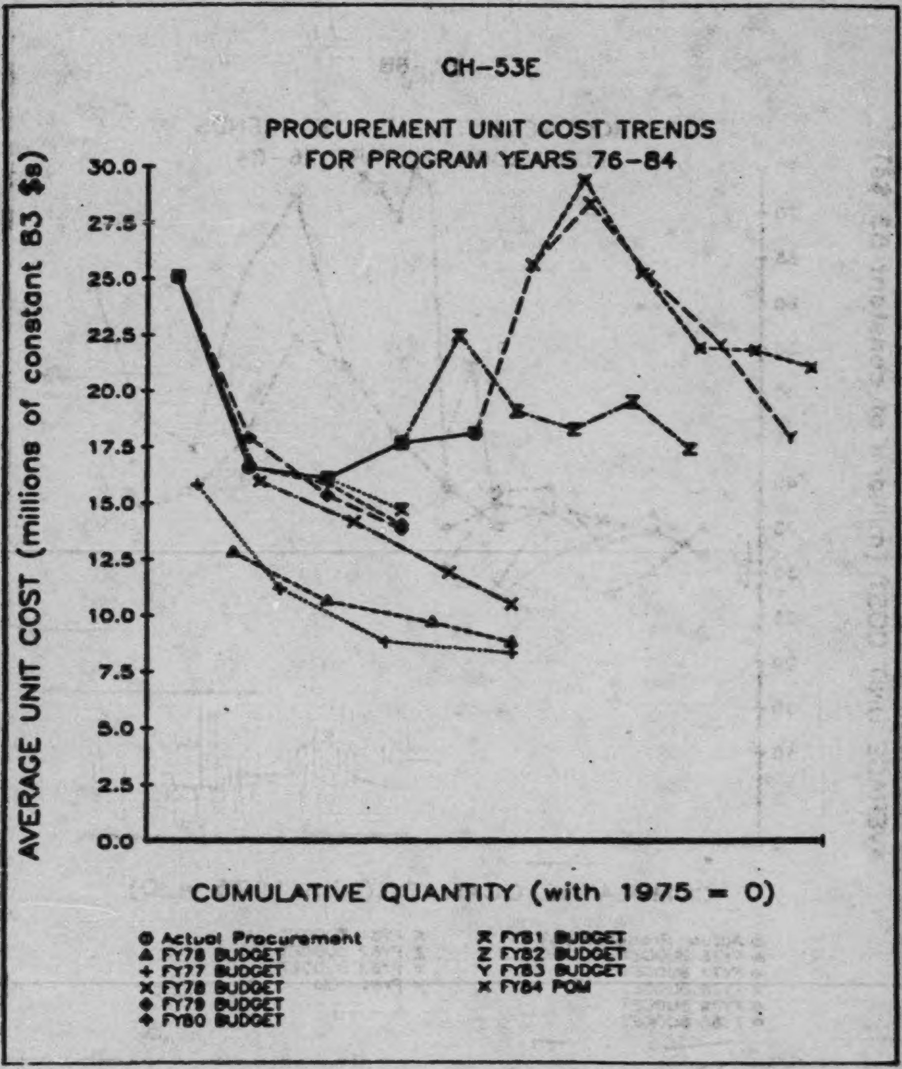
AV-8, that is the only point we have. These are the early estimates made in the 1960's.



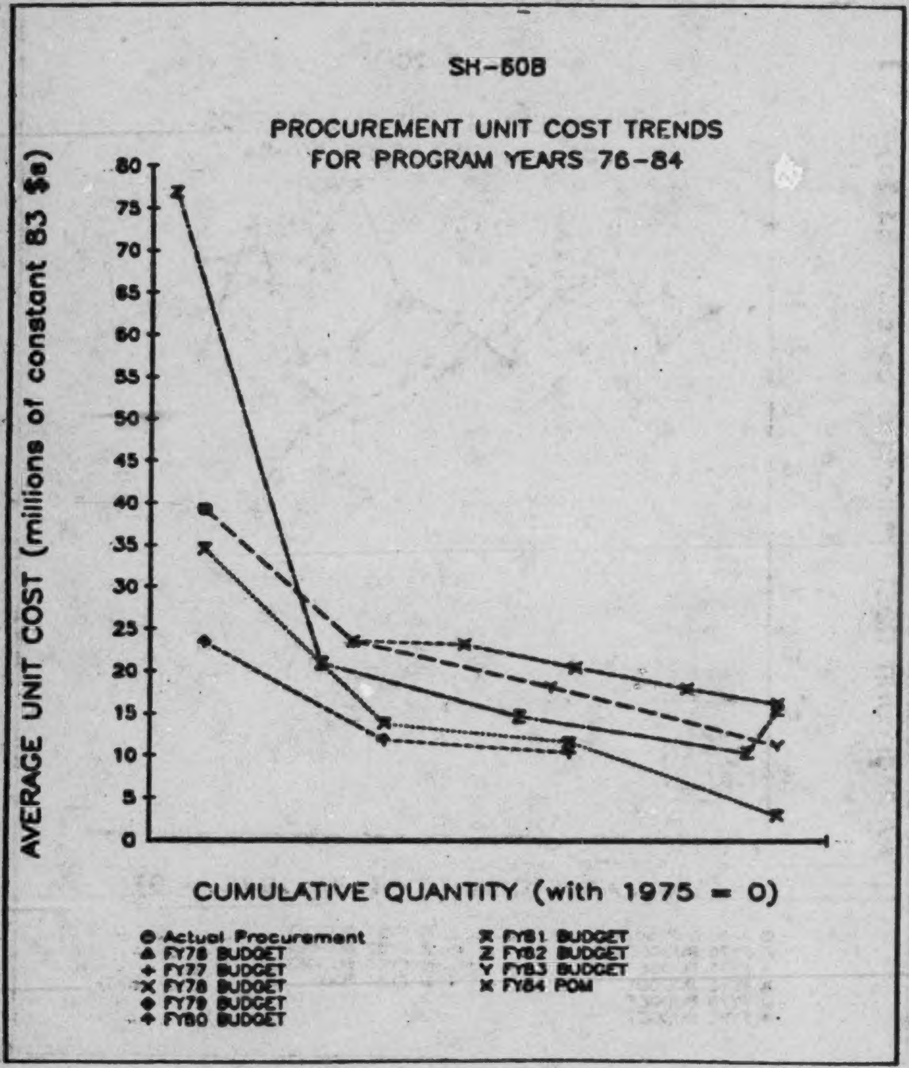
A-6, actual cost. The budget, the 1983 budget.



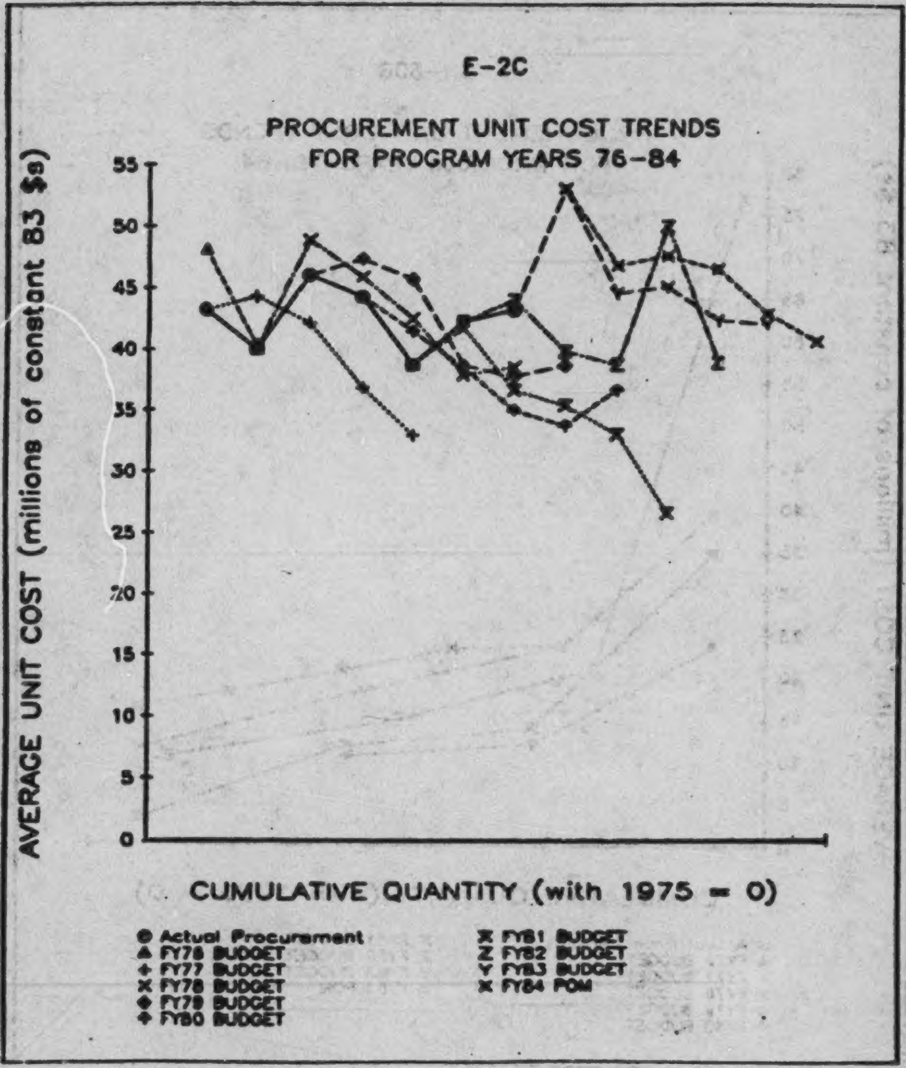
EA-6, actual costs. These are budget changes year to year.



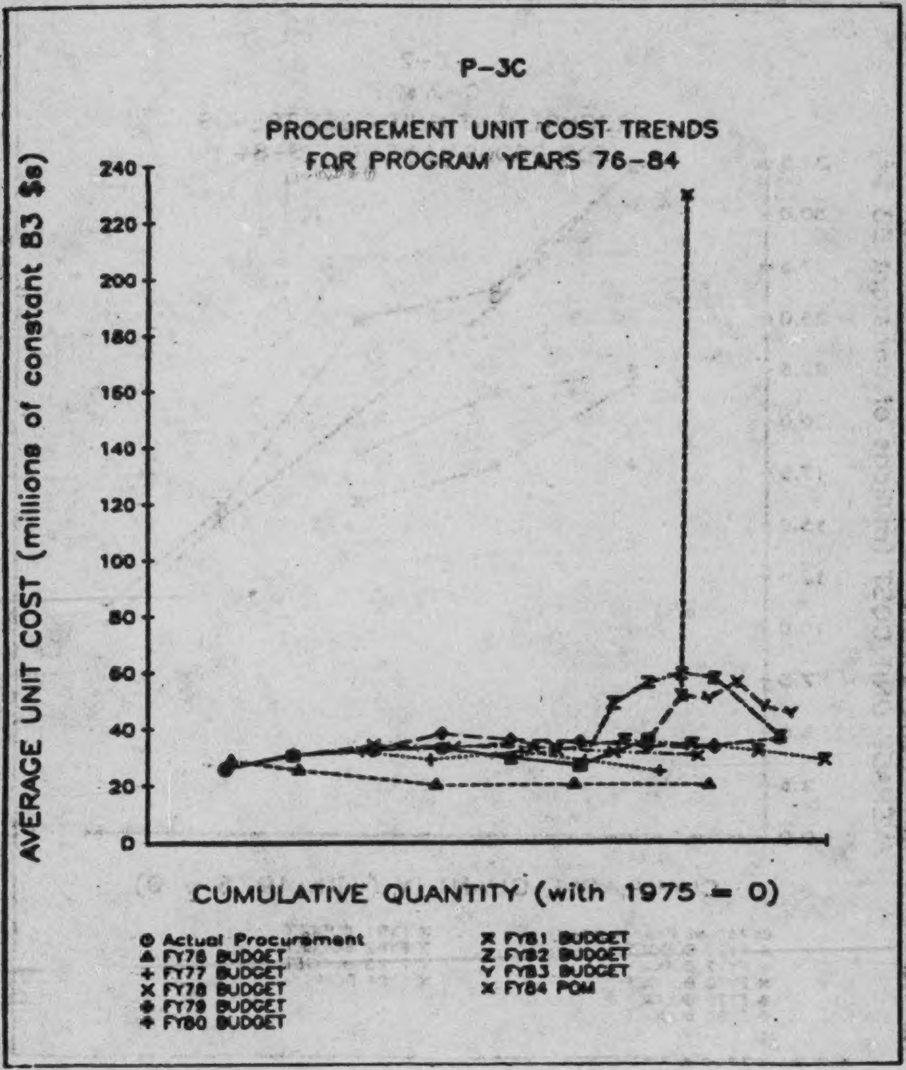
CH-53E. Here is where we are. Here are the early estimates.



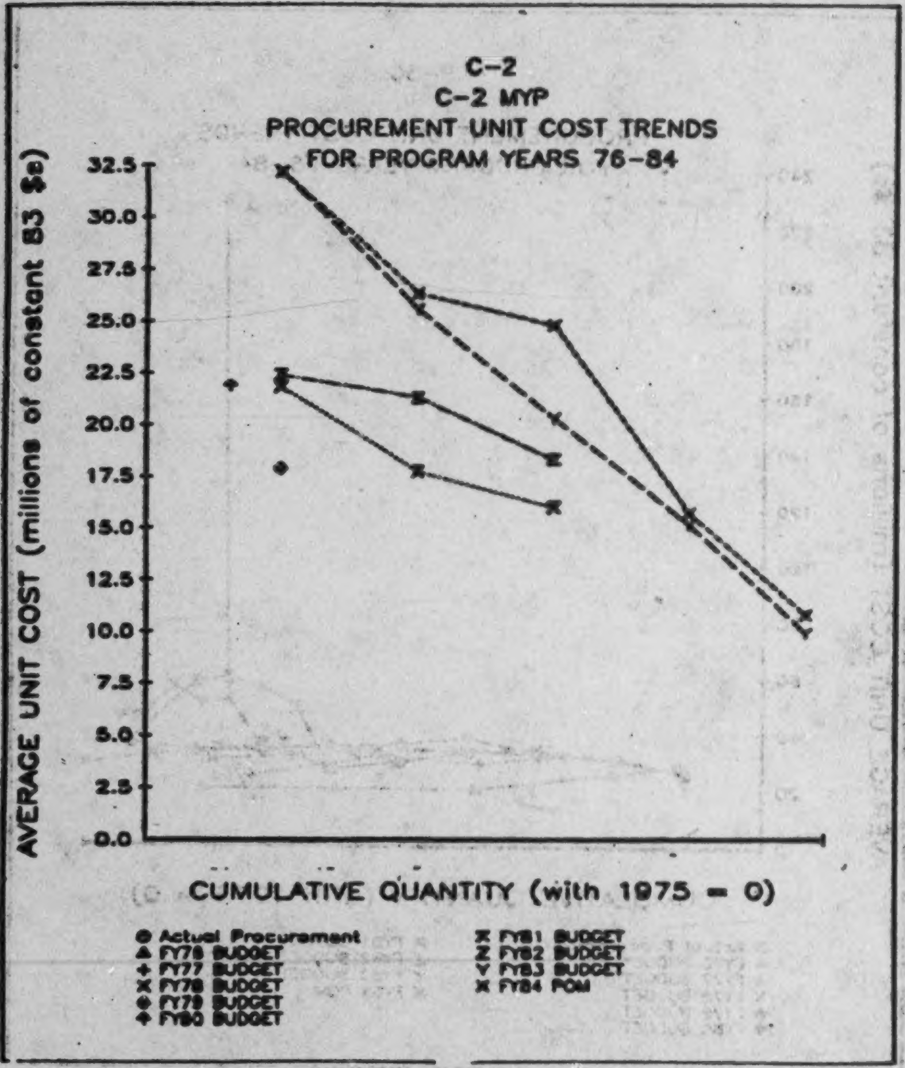
SH-60, this is the LAMPS helicopter program. Here is where we are. Now, this is a smaller quantity so it is naturally going to be higher.



E-2C, that is where we are.

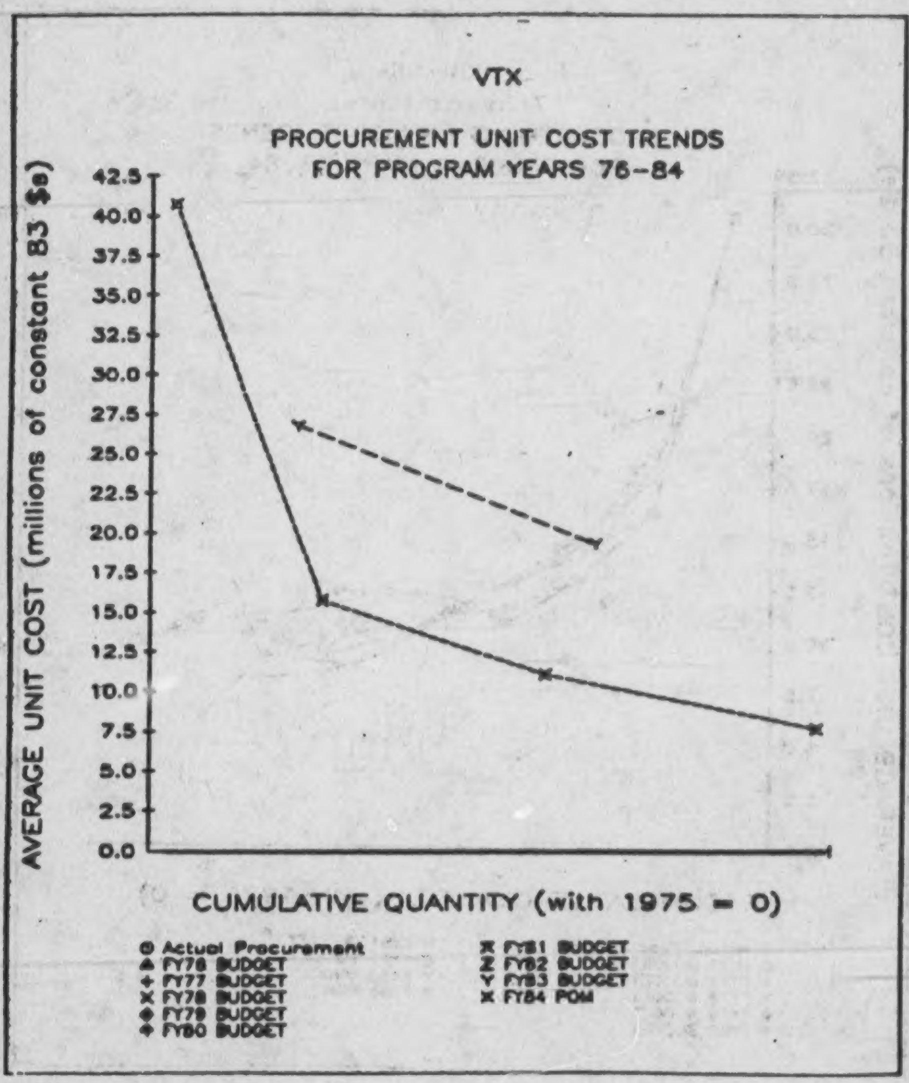


P-3, that is where we are.

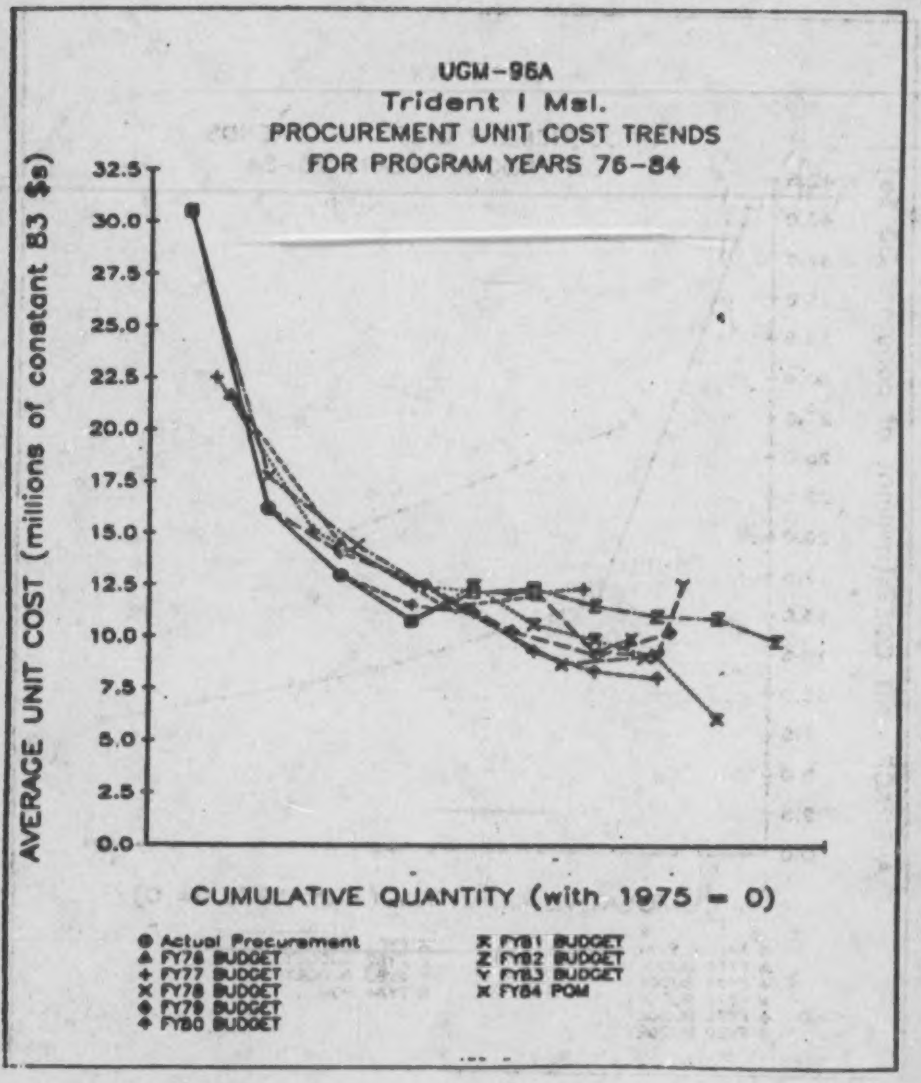


C-2, this is a new system in the planning stage, the new COD carrier onboard delivery, the 1983 budget and the 1984 budget.

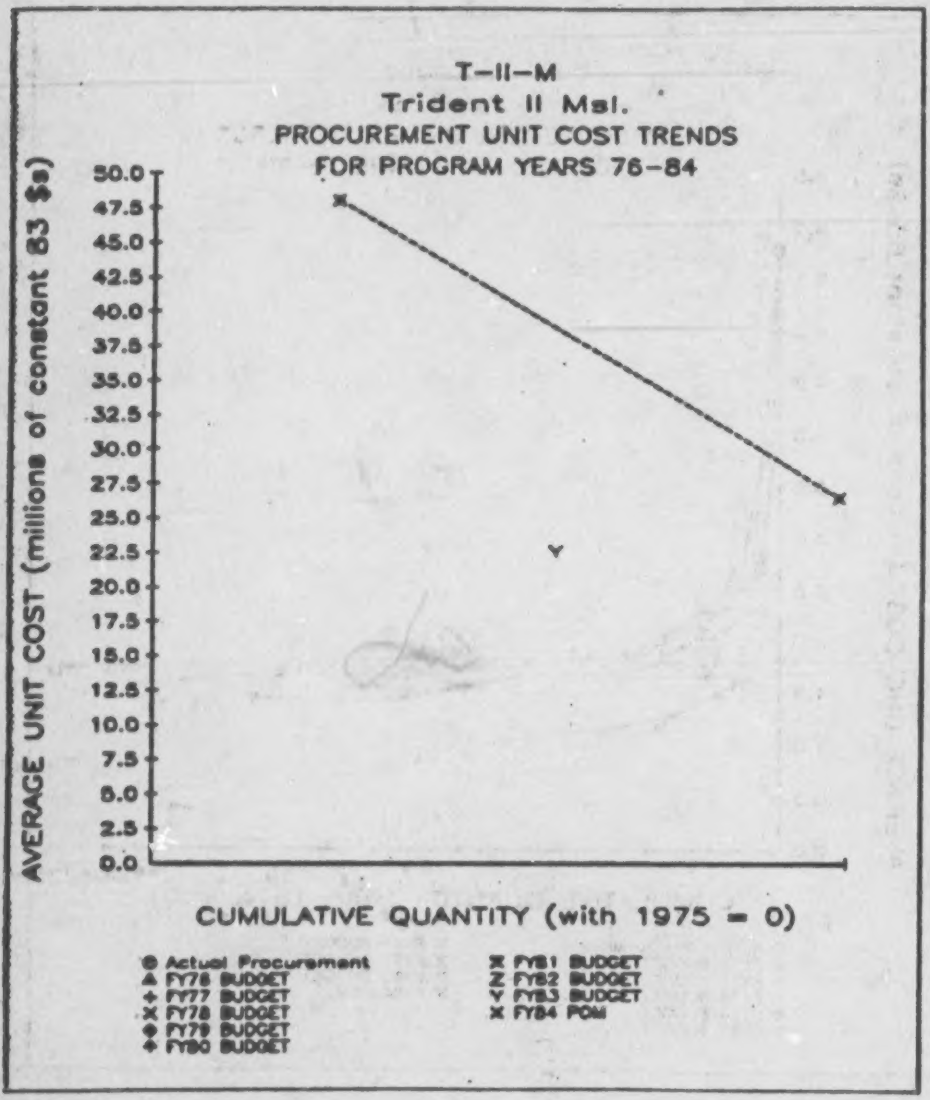
The point is, these changes are still taking place.



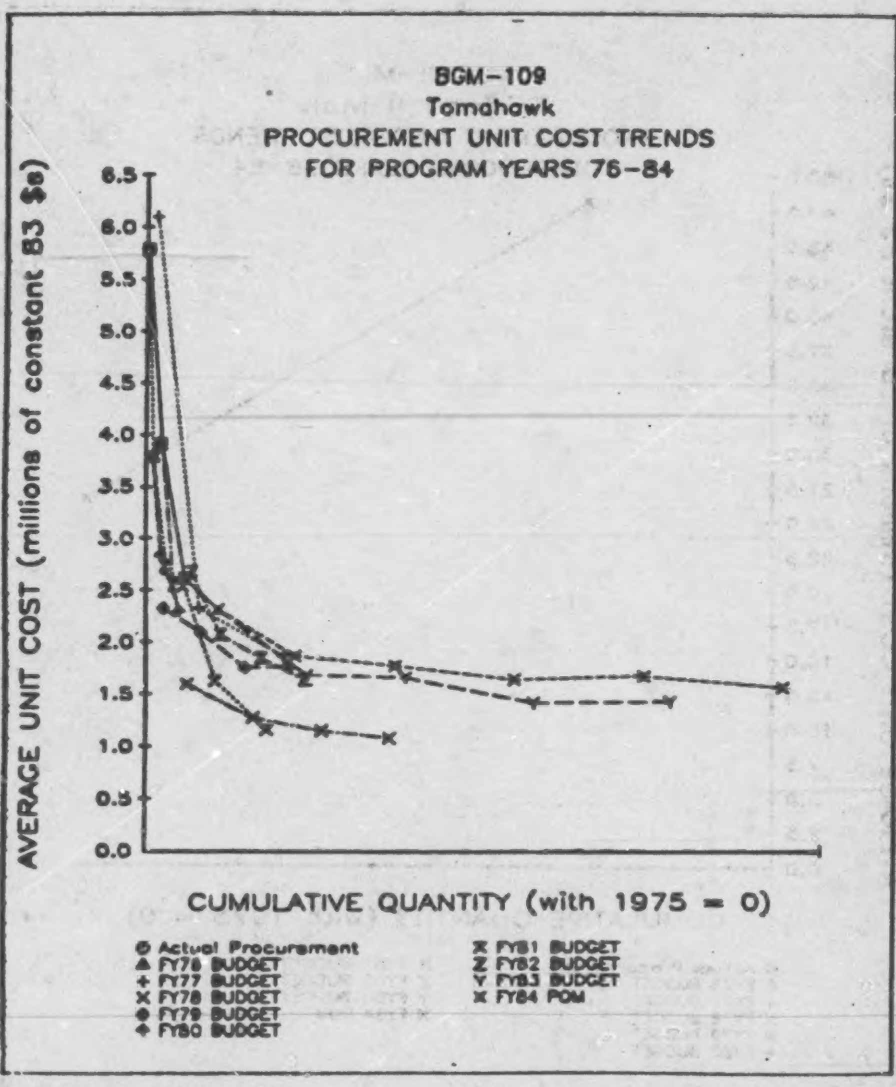
VTX. We actually lowered the estimates here. Here is 1983 and 1984.



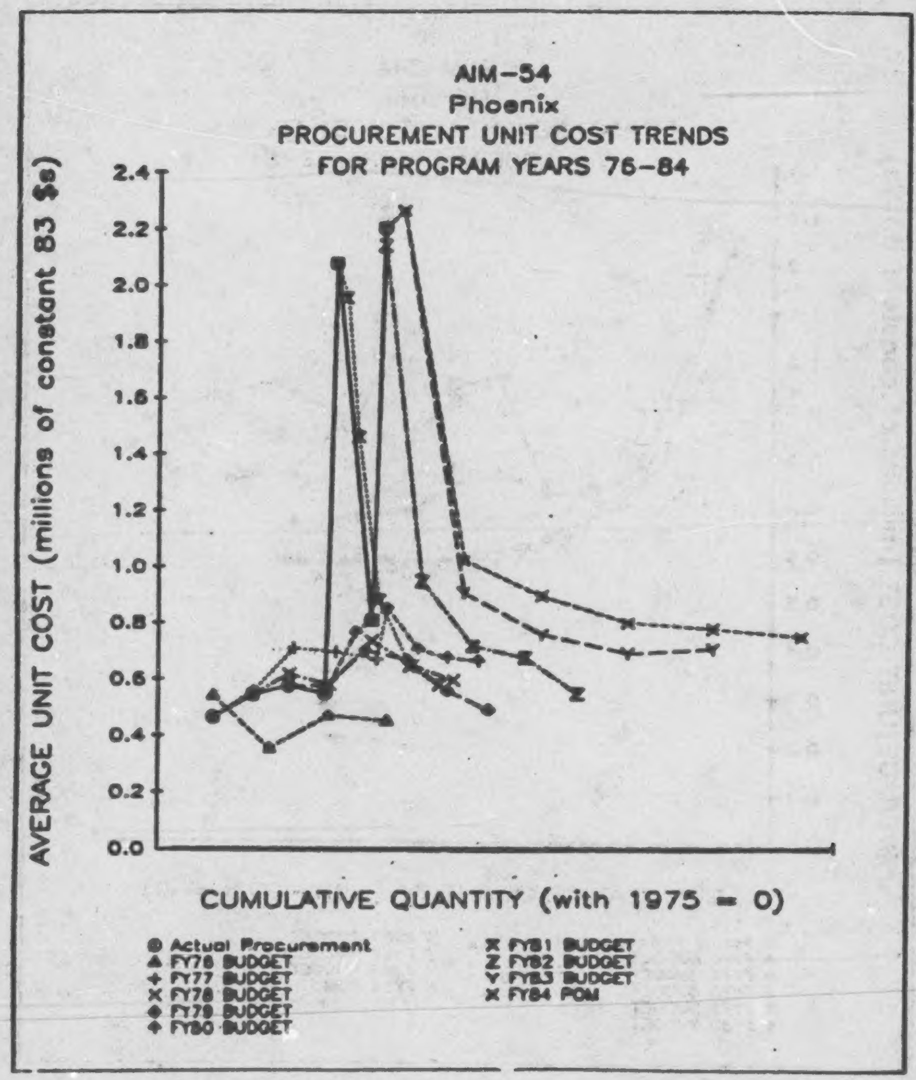
Trident I missile. It came in under cost for a while, and now we are over the projection.



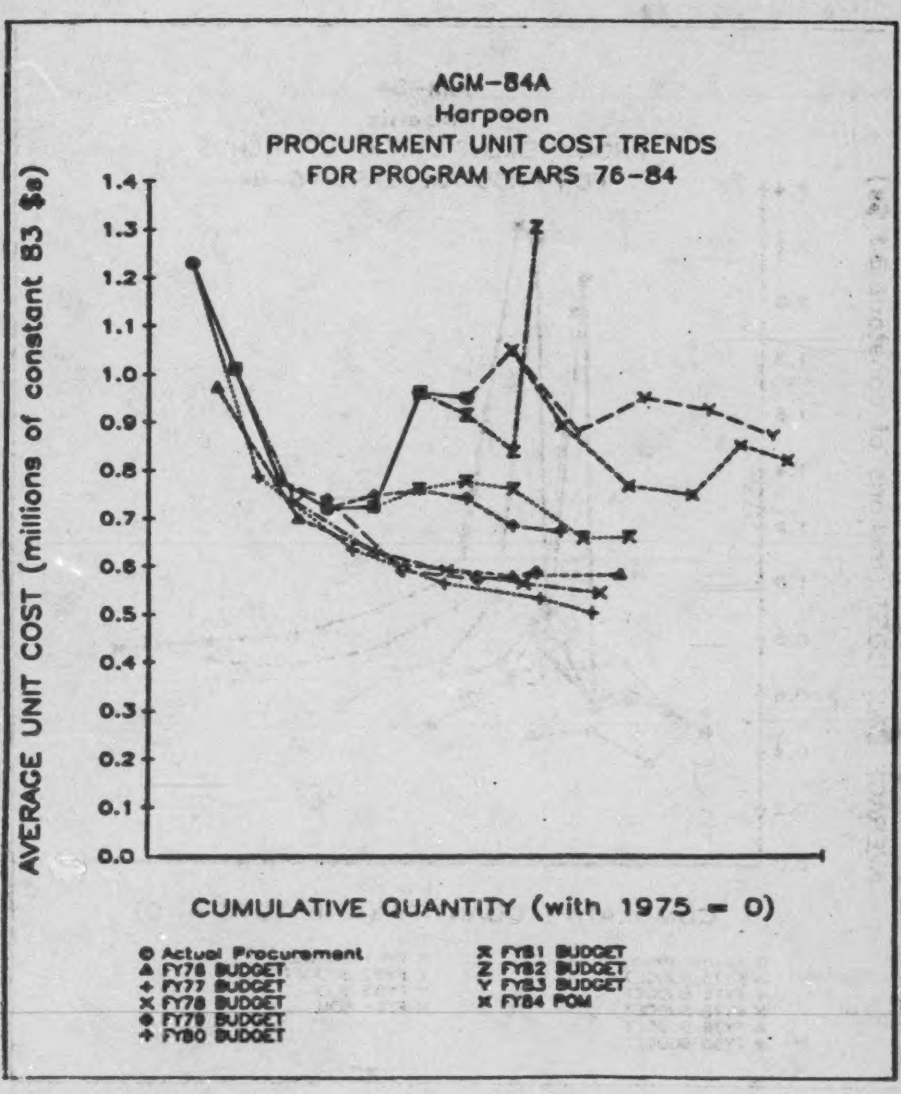
The Trident II missile. This is the 1983 estimate and this point would have been the last year in the fiscal year 1983 FYDP. That would have been 1987. This will be 1987 now and 1988. The costs have gone up.



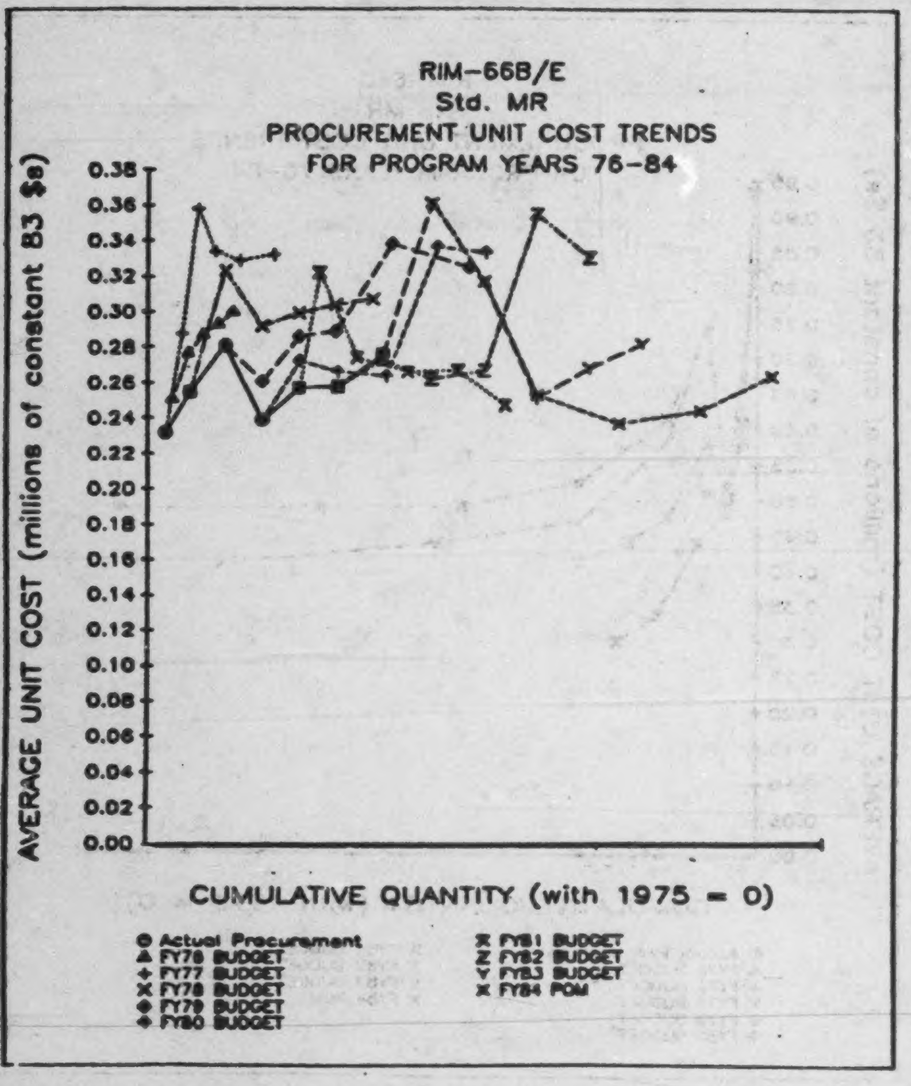
Tomahawk cruise missile. Here is where we are, right there. You can see the early estimate there, and you can see how we are marching up there.



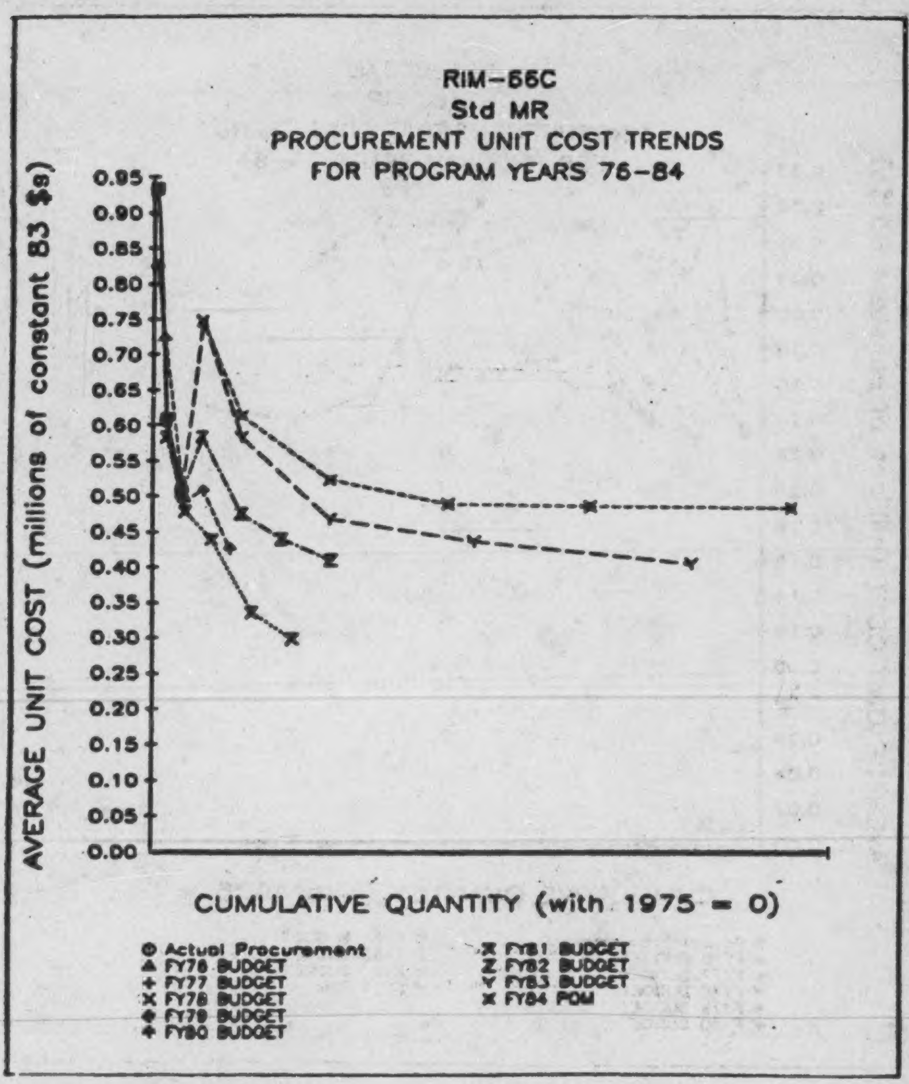
Phoenix, air-to-air missile. Here is where we are and we are up there now. Yo can see the estimate increased from there to there.



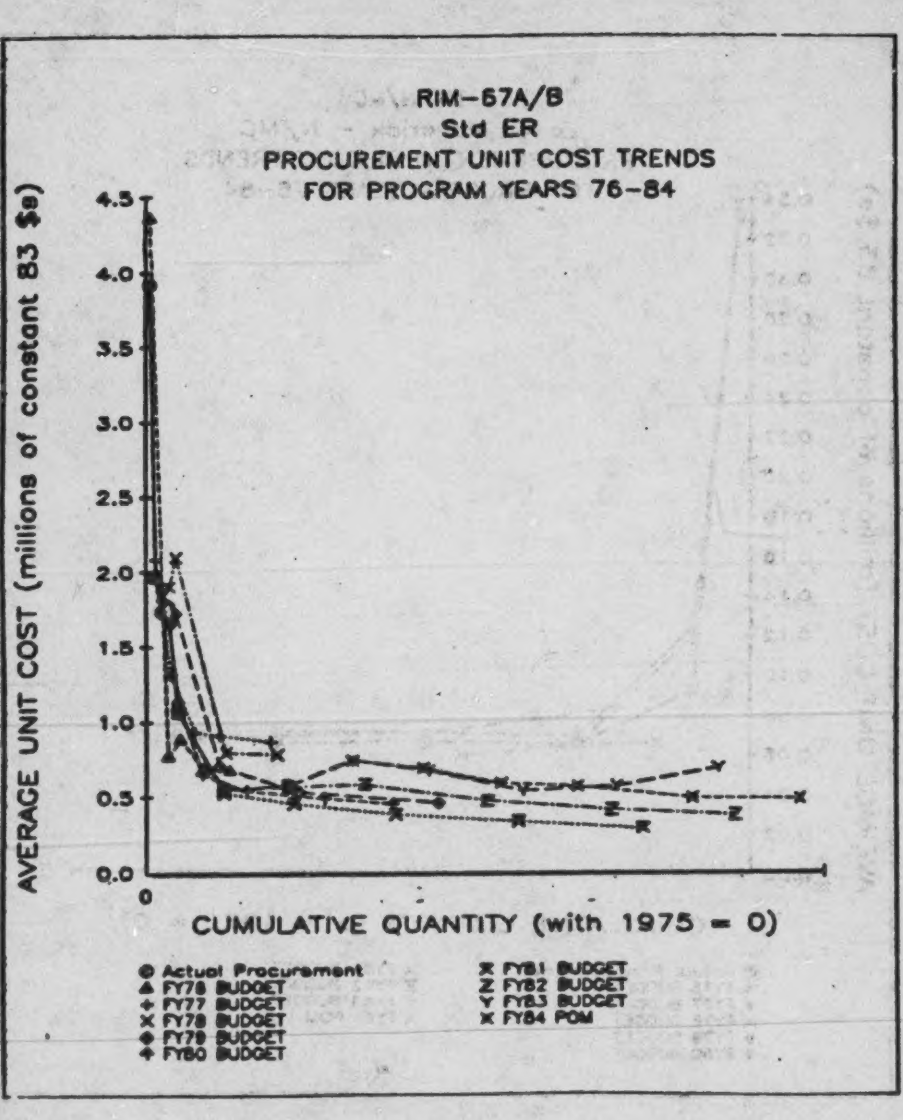
Harpoon. Early estimates, here is where we are.



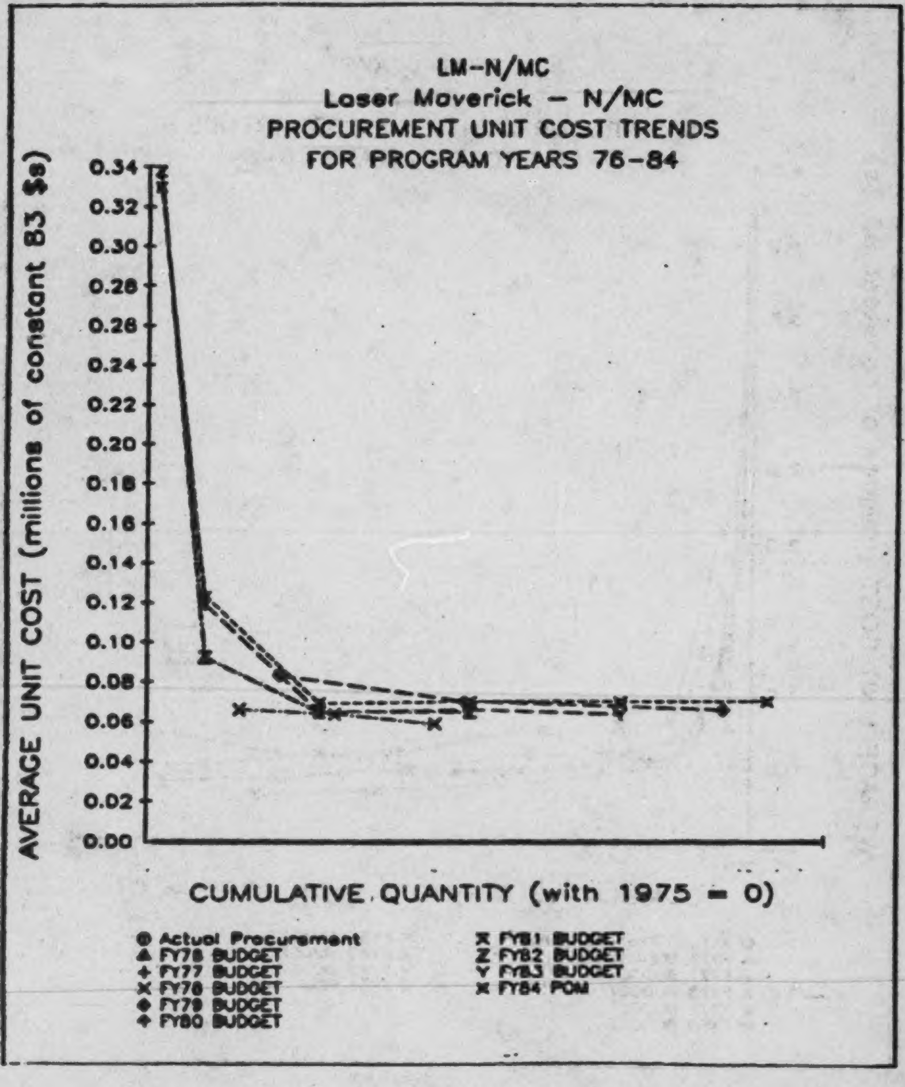
Standard missile, medium range. That is where we are. We have acually done better than we estimated here.



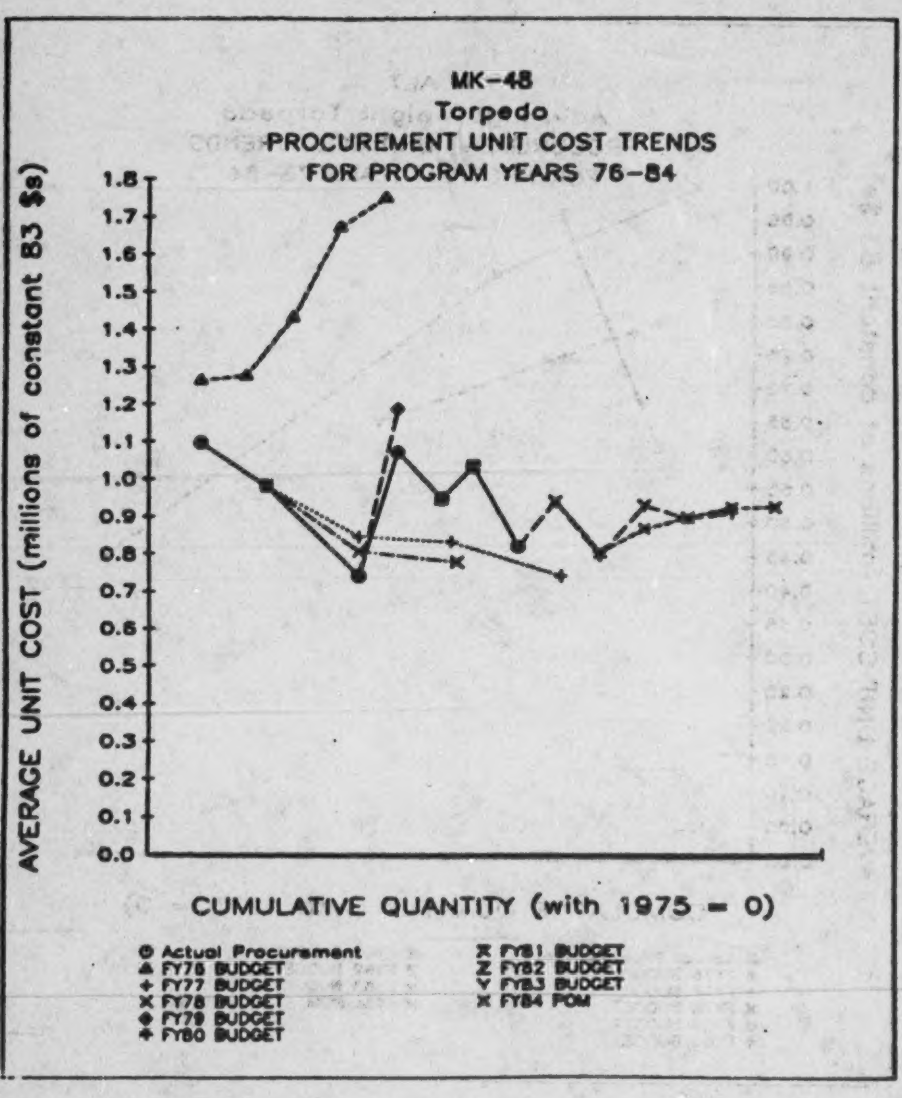
This is another version of the Standard missile. That is where we are, and you can see the costs narrowed.



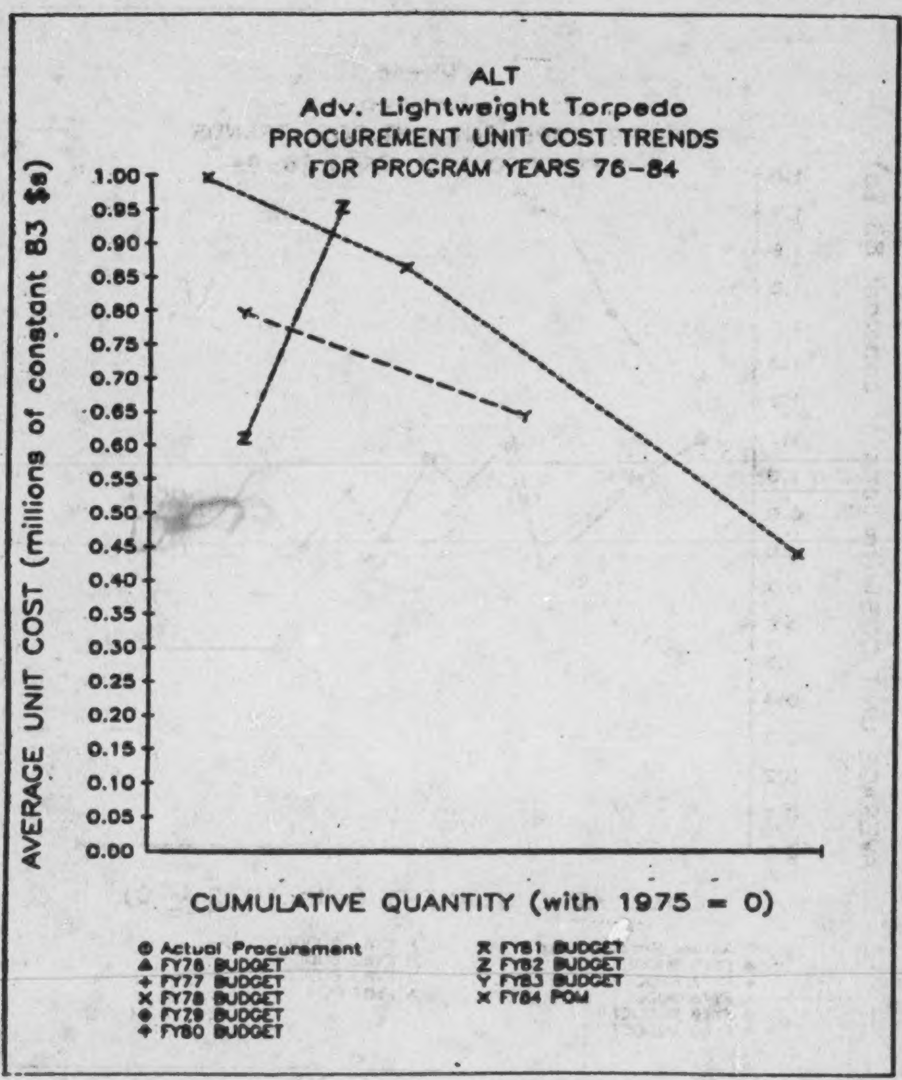
Extended range standard missile. Here is where we are, and you can see the costs here. This is a big increase from there to there.



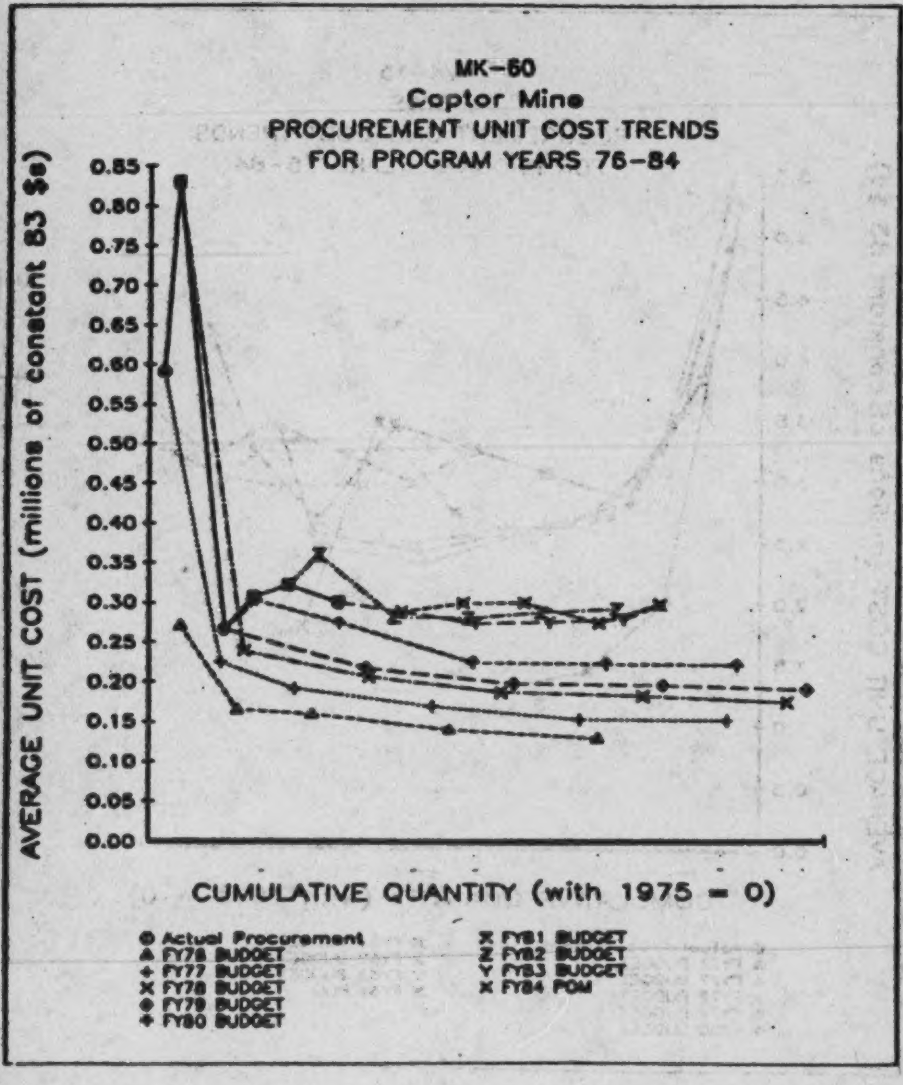
Laser Maverick, just planning numbers. But our force structure is based on those planning numbers when we are looking out at 1987.



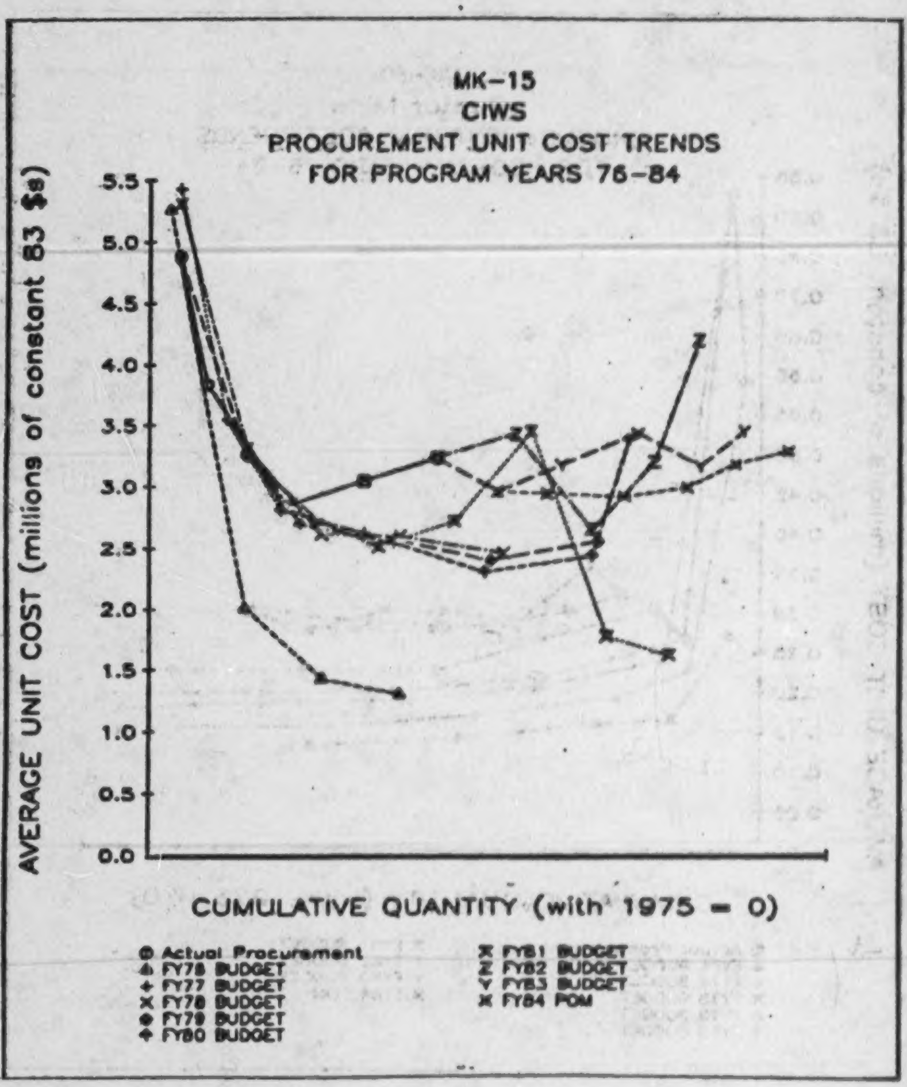
Mark 48 torpedo. Remember, these costs are the basic building blocks of our force structure.



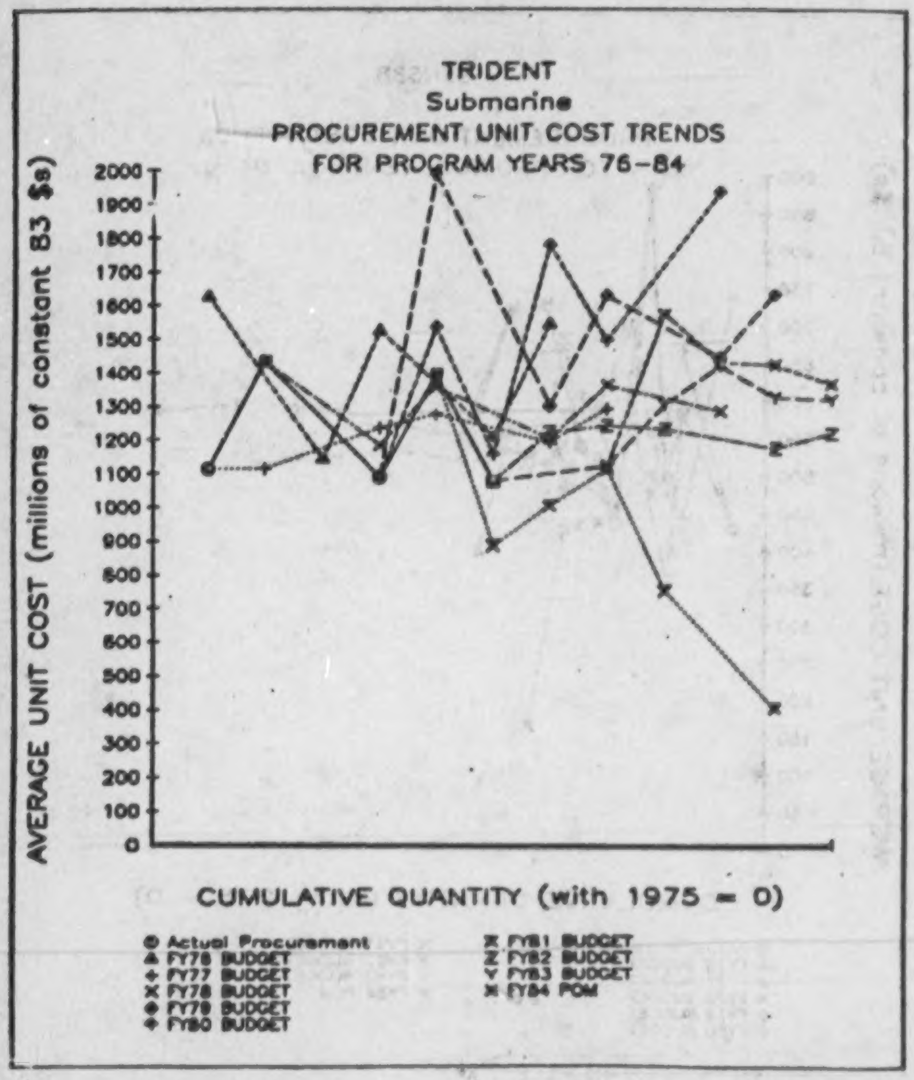
Advanced light-weight torpedo. Three successive 5-year plans.



Mr. SPINNEY. Captor mine. Steady increase in cost. That is where we are.



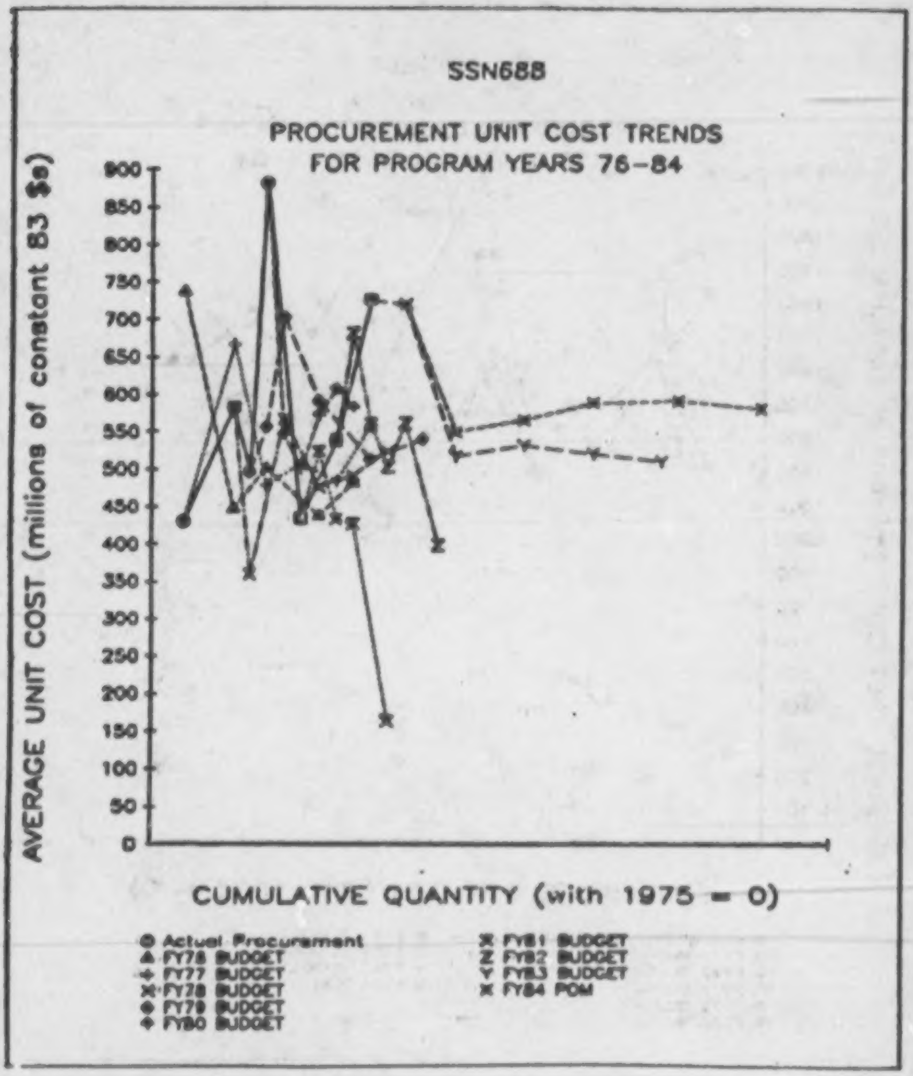
Close-in weapon system, that is where we are, compared to where the bulk of our planning systems were.



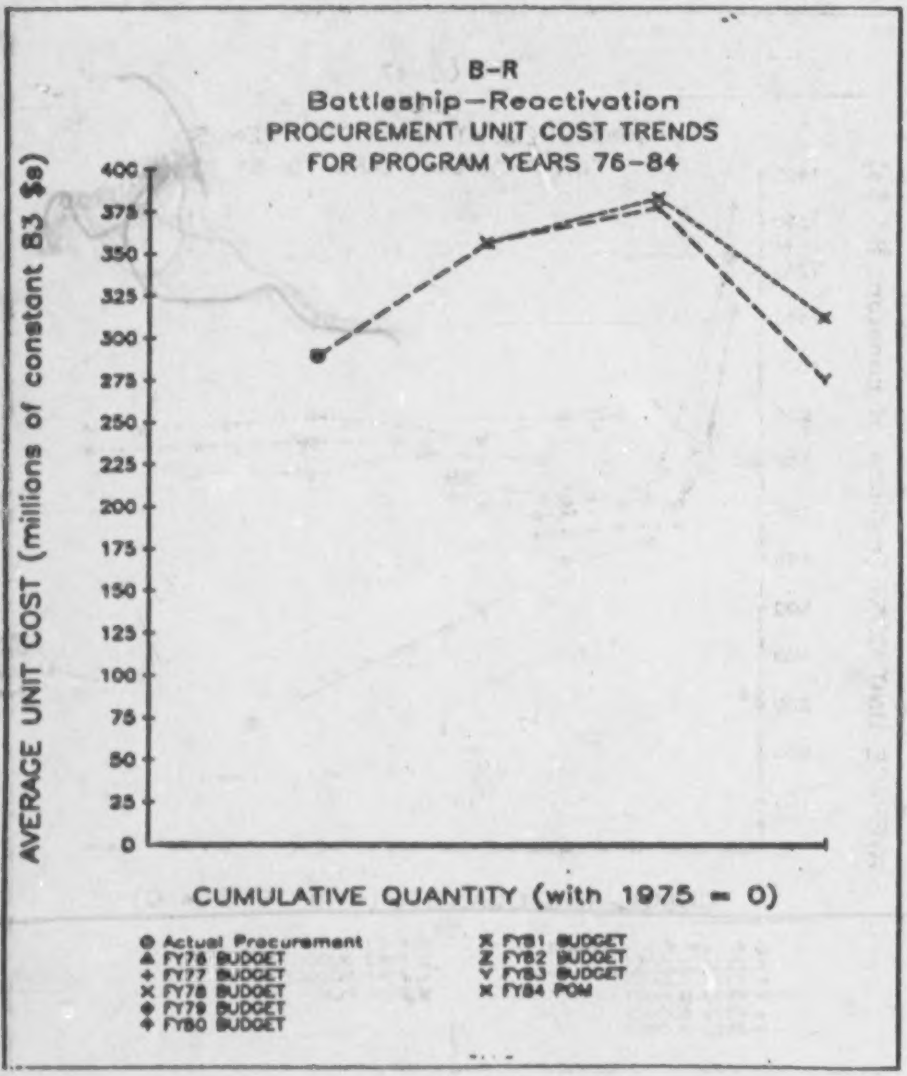
Trident submarine. These numbers, the 1981 budget data, the "x" with the bar on them are incorrect. There was a systematic error in the published data and I did not recognize it until after we plotted the data.

Senator KASTEN. Excuse me?

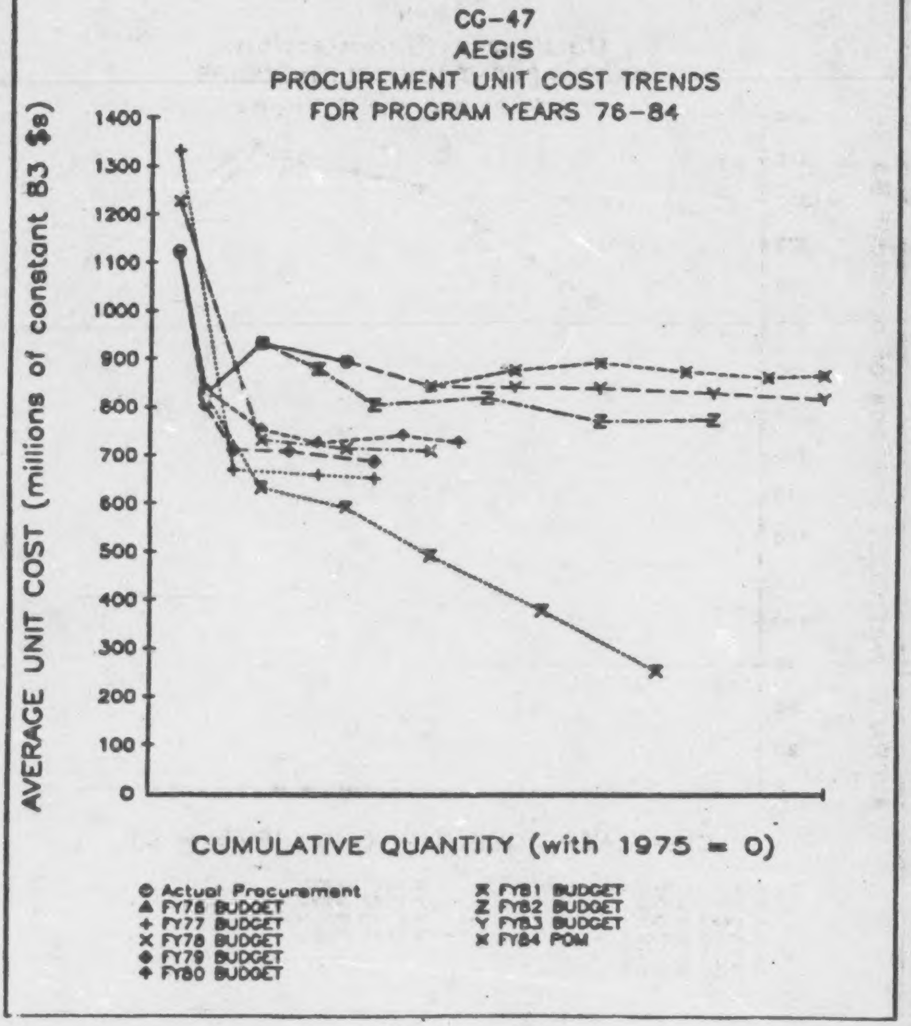
Mr. SPINNEY: The other data is OK.



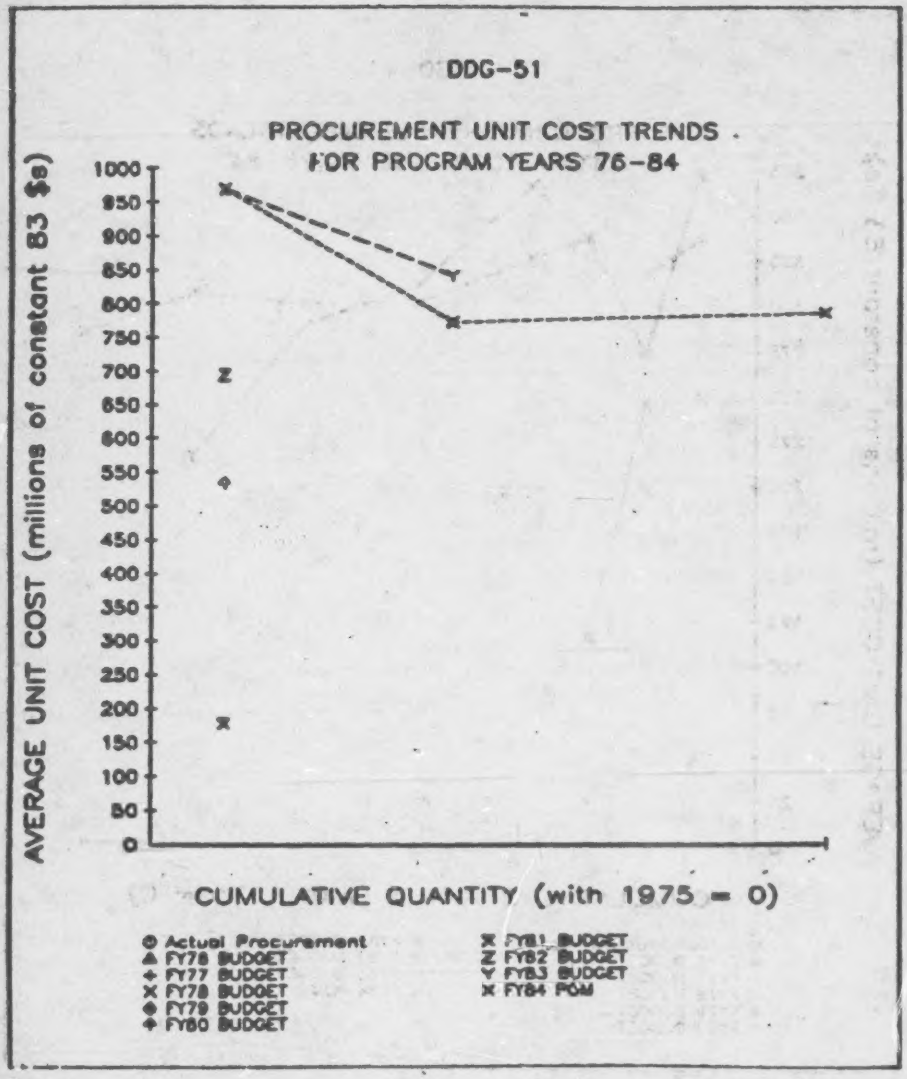
SSN-688, the 1983 budget, 1984 budget.



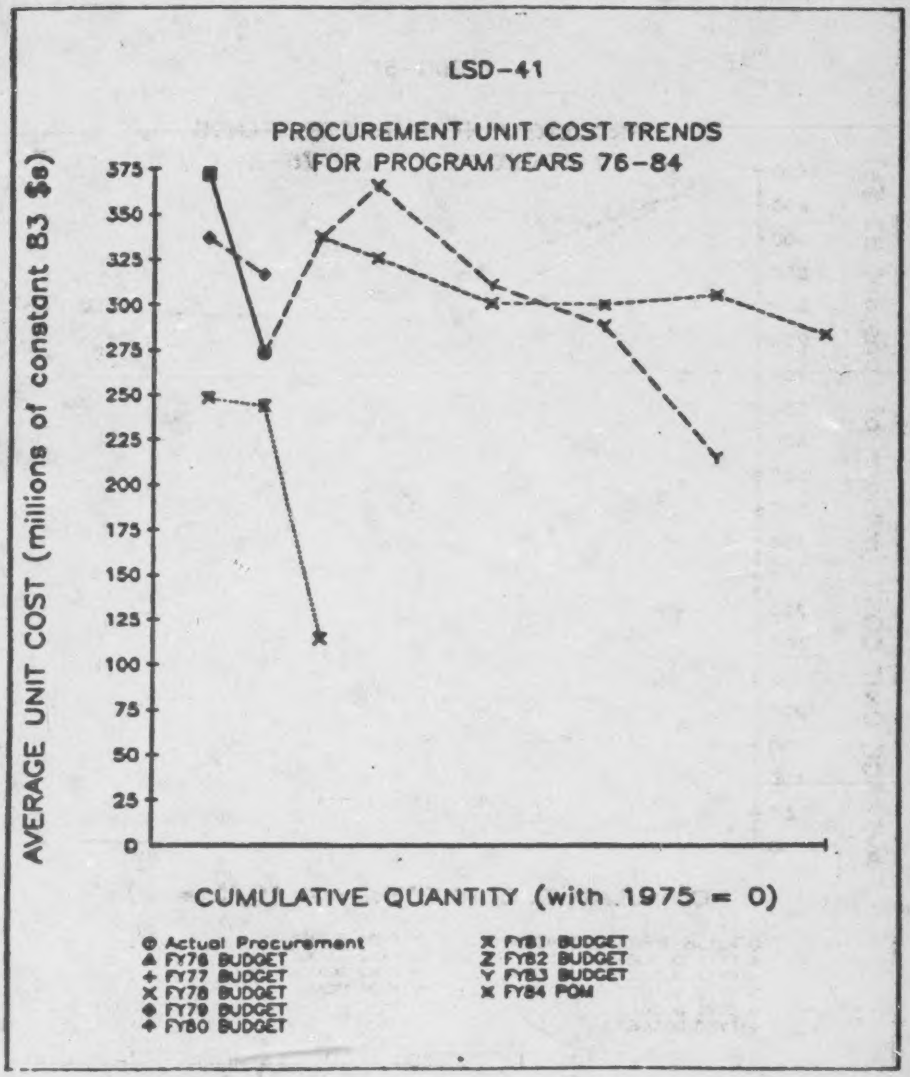
Battleship Reactivation, 1983–84, an increase in price.



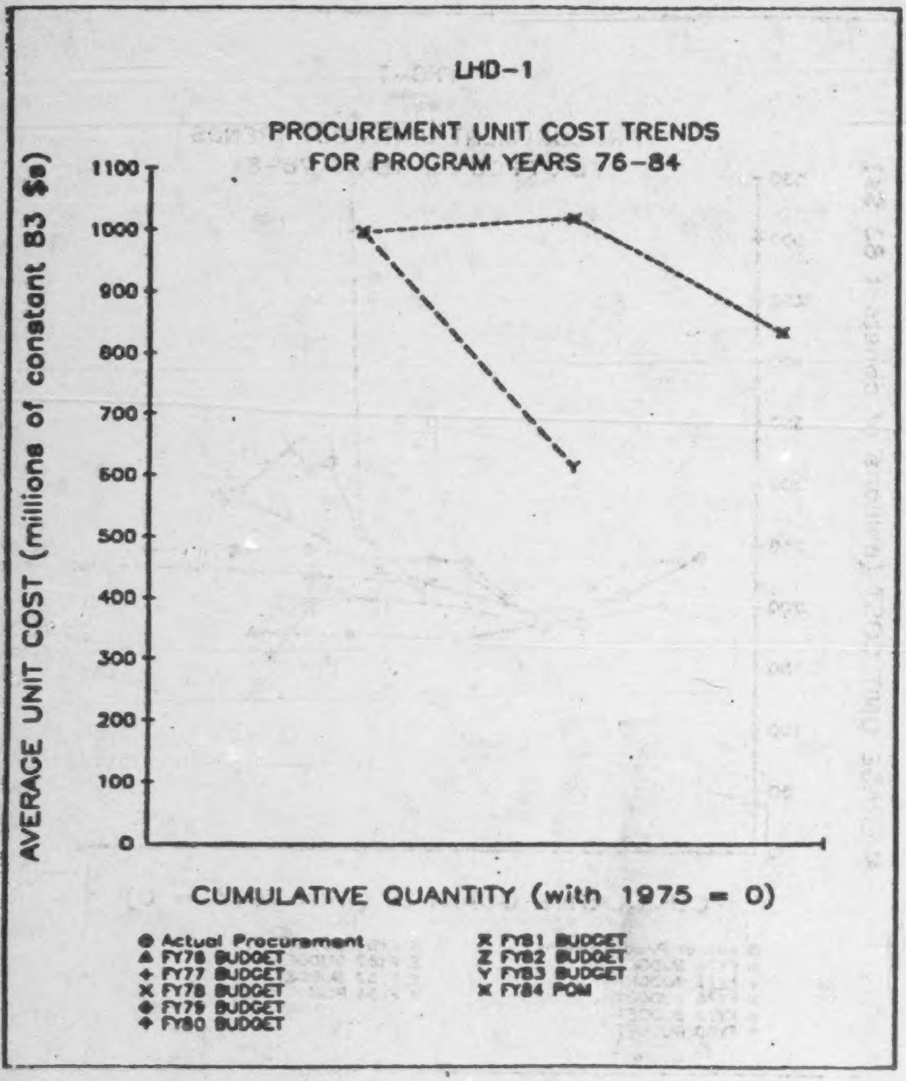
Aegis, early estimates. This is the fiscal year 1981 budget where there was a mistake. Of course, you can see 1982, 1983, 1984.



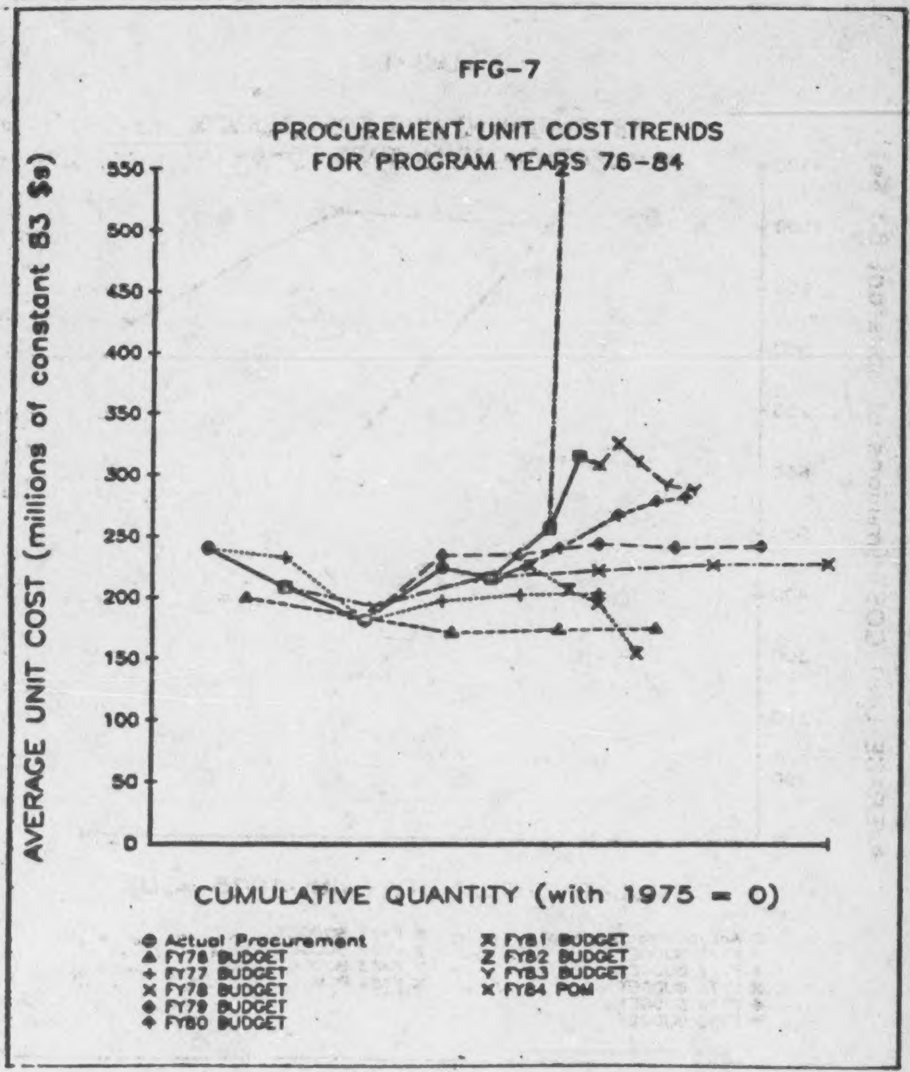
DDG-51, this is the error. Lead-ship estimate here. The second ship was going to be this, now it has lowered a little bit.



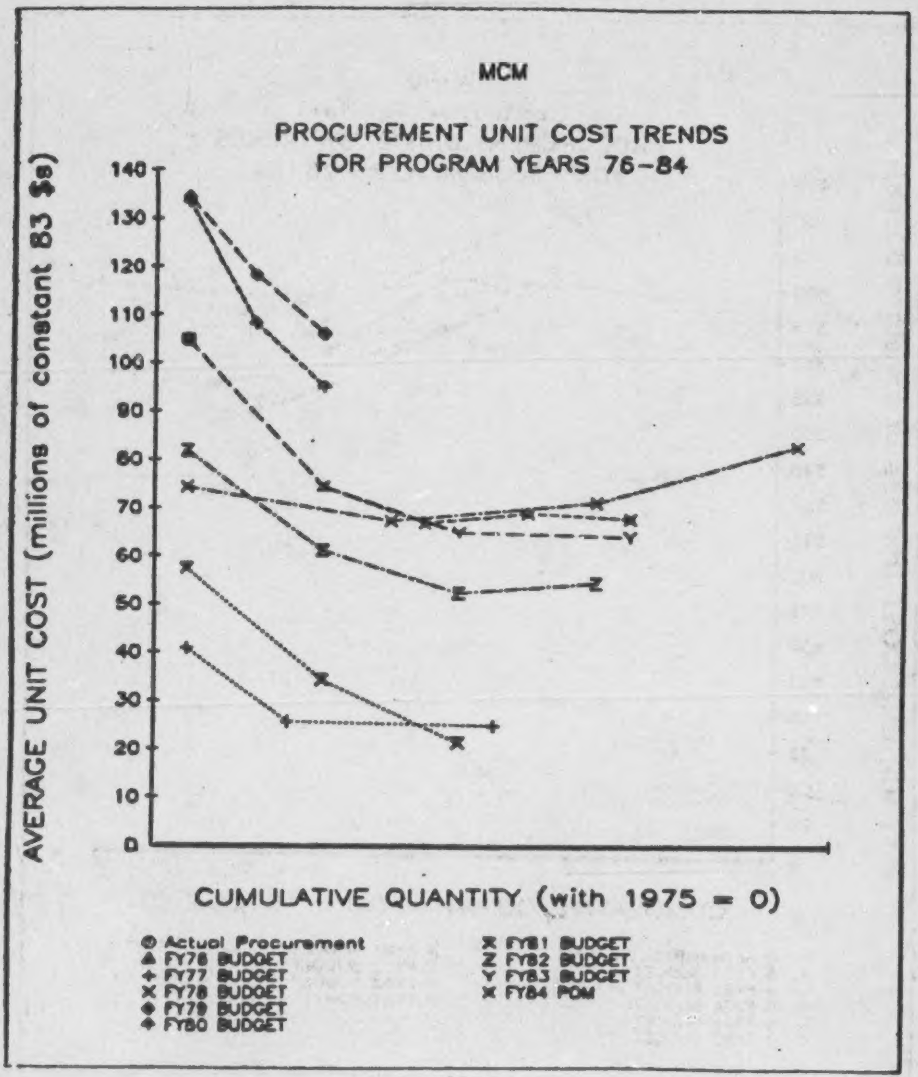
LSD-41. That is where we are. We lowered the costs in the near term and raised them in the far term.



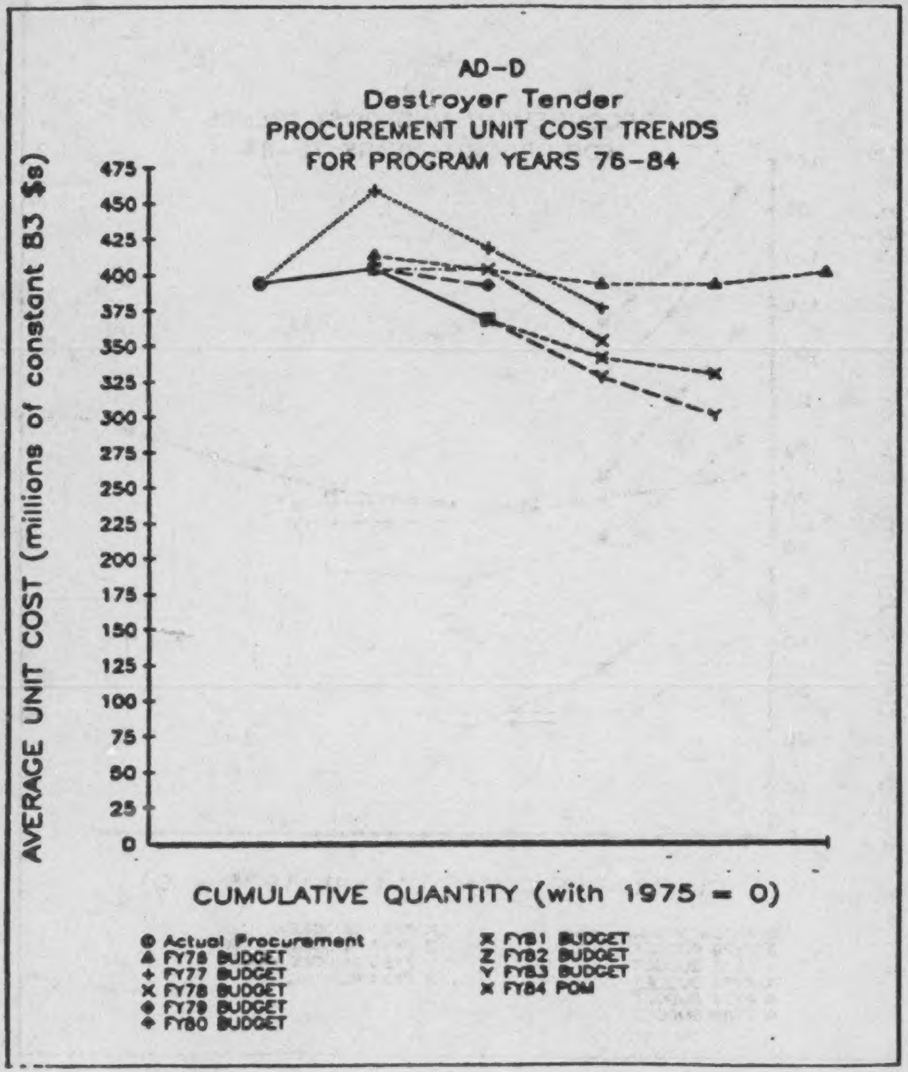
LHD-1, here is the 1983 budget, 1984.



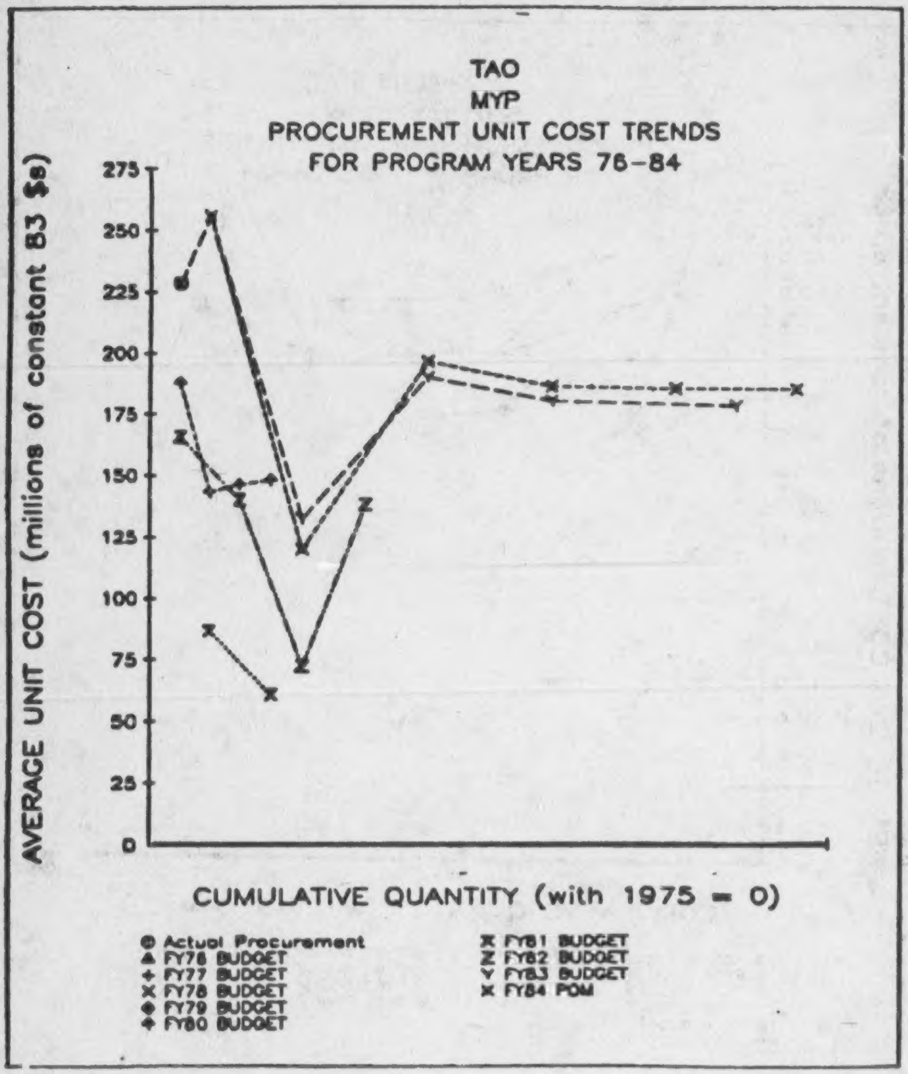
FFG-7, that is the Frigate. The solid line, that is where we are.



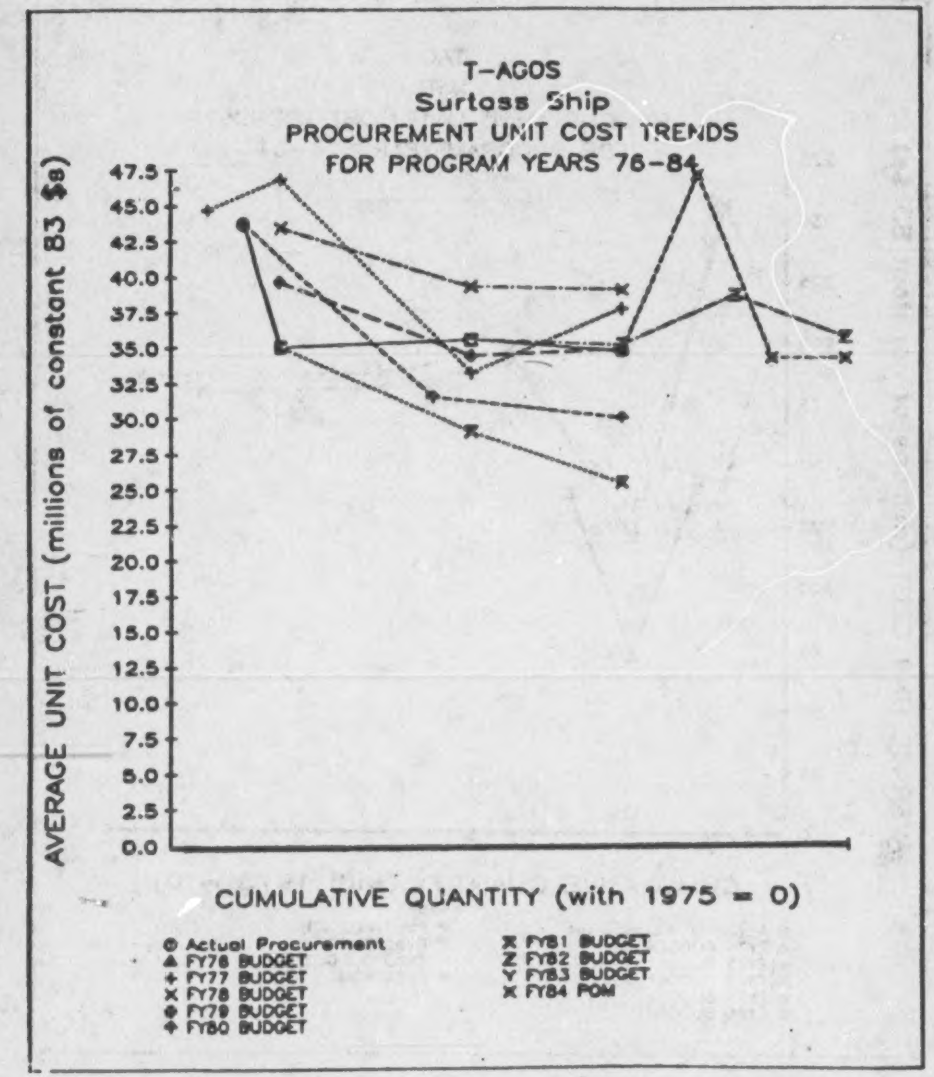
Mine countermeasure ship, that is another mine warfare ship, the 1984 budget.



Destroyer tender, 1983-84. These are early versions. They may be slightly different although I think they are the same class.



Oiler, you can see that we have increased the cost there, the cost projections.

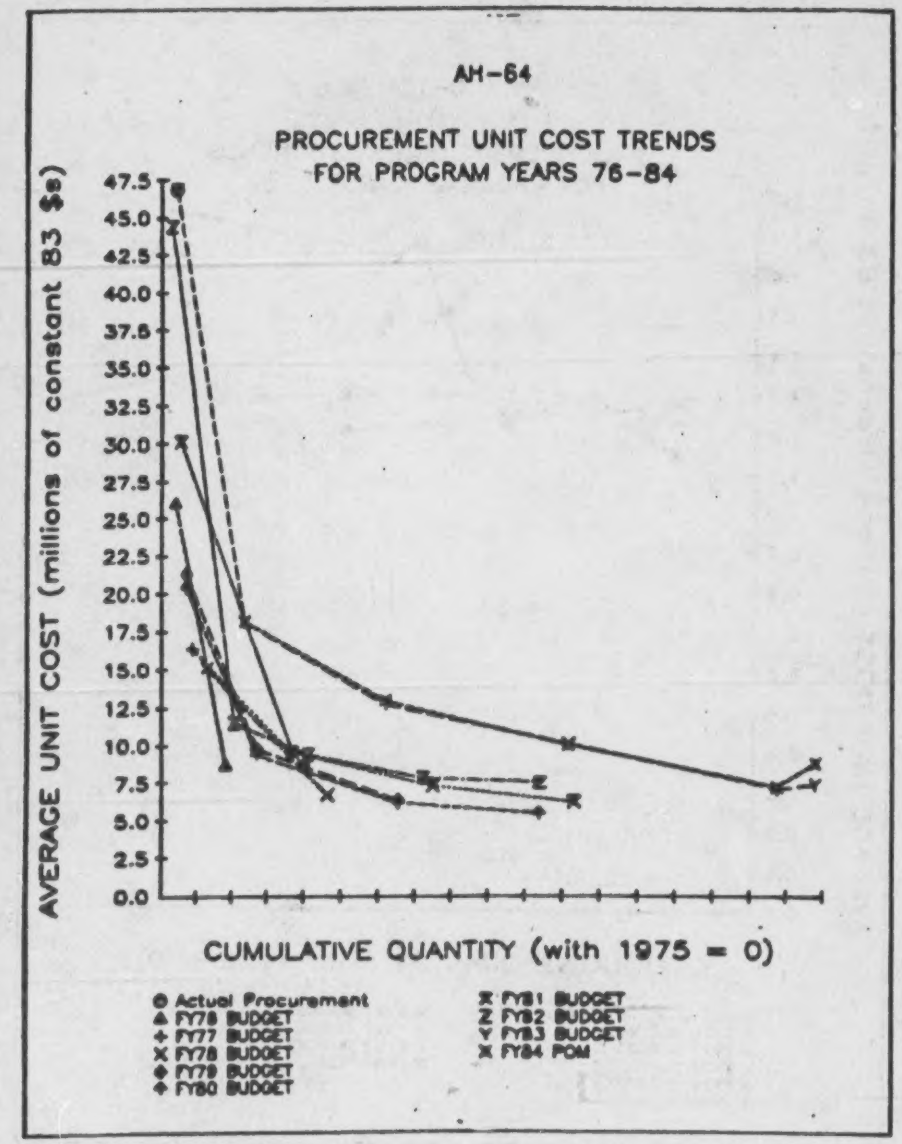


This is a towed arrary ship. That is where we are. Ammo ship, there is the 1984 budget and the 1983 budget.

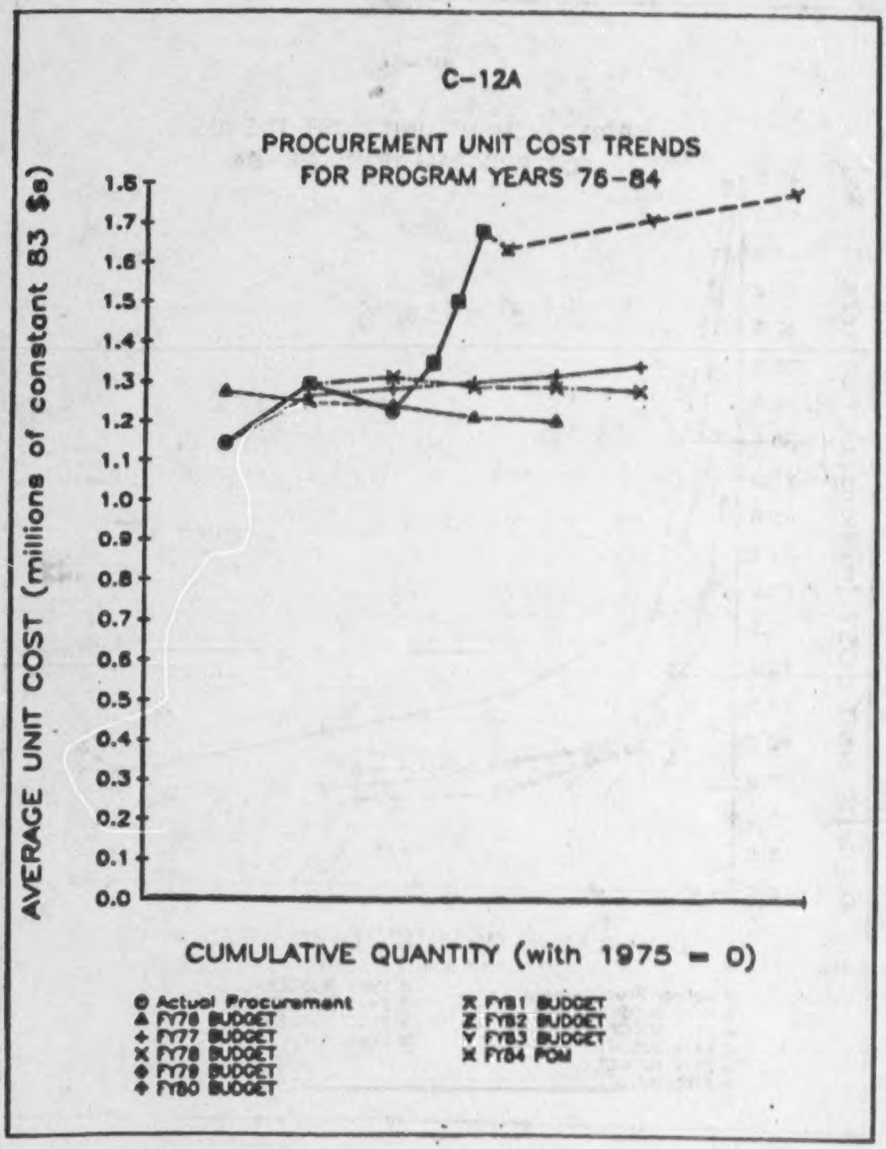
Fast combat support ship, the 1983 budget, 1984 budget.

This is the SL-7 conversion.

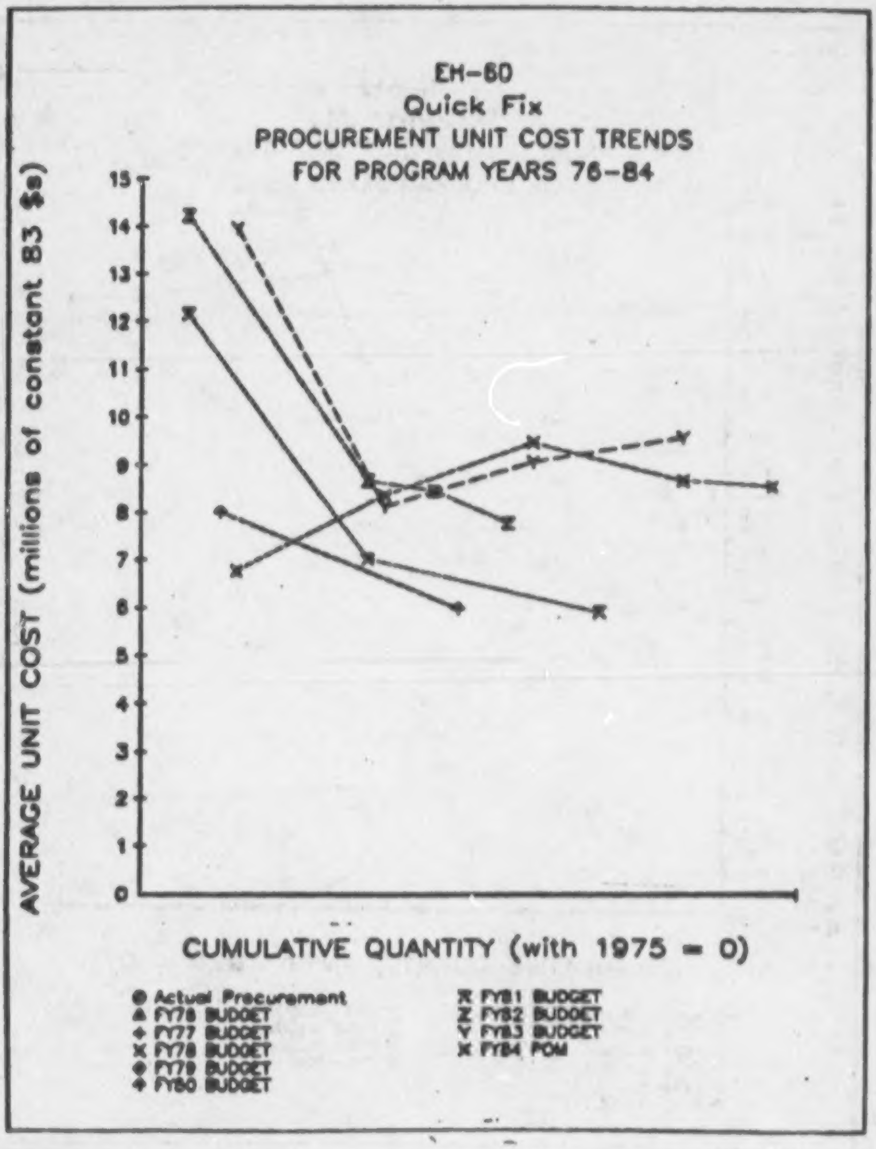
Let us just take a quick look at the Army.



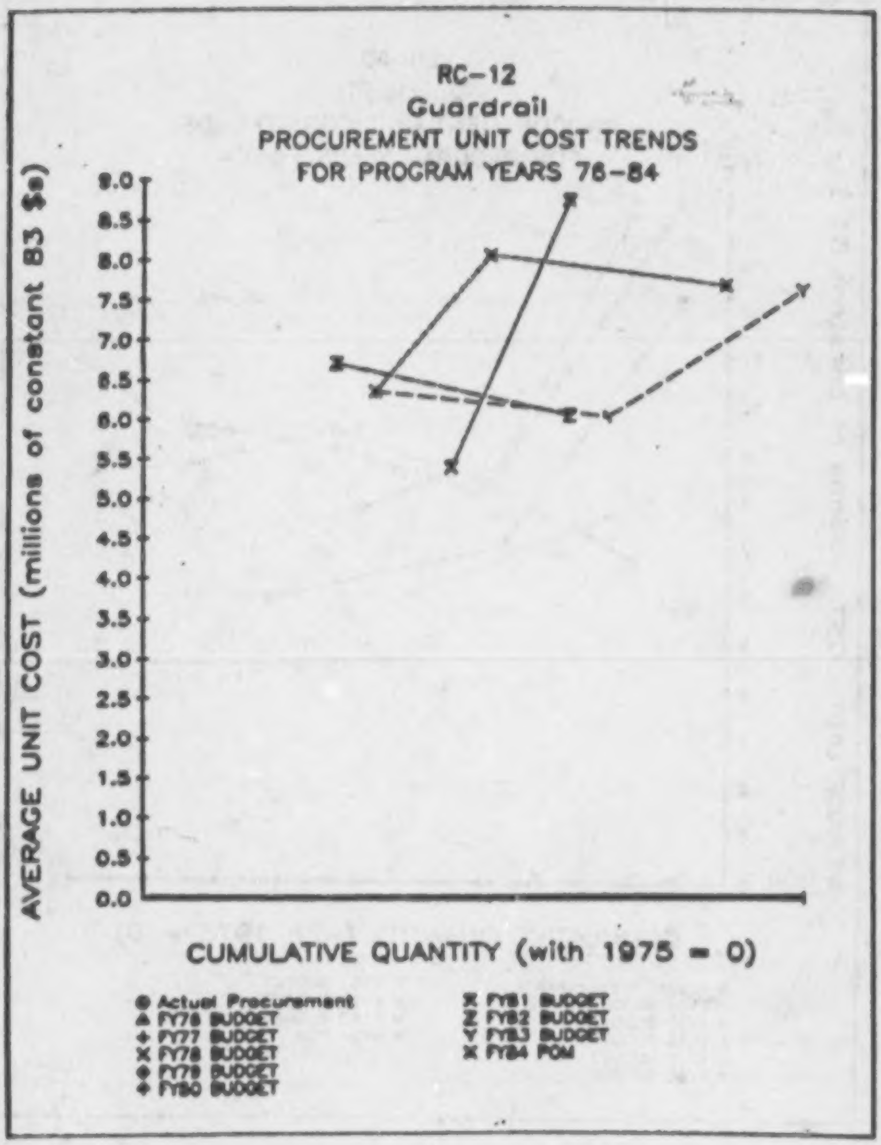
Attack helicopters. Here is where we are. These are the early estimates, these are the current estimates. Of course, this is the only actual point we have.



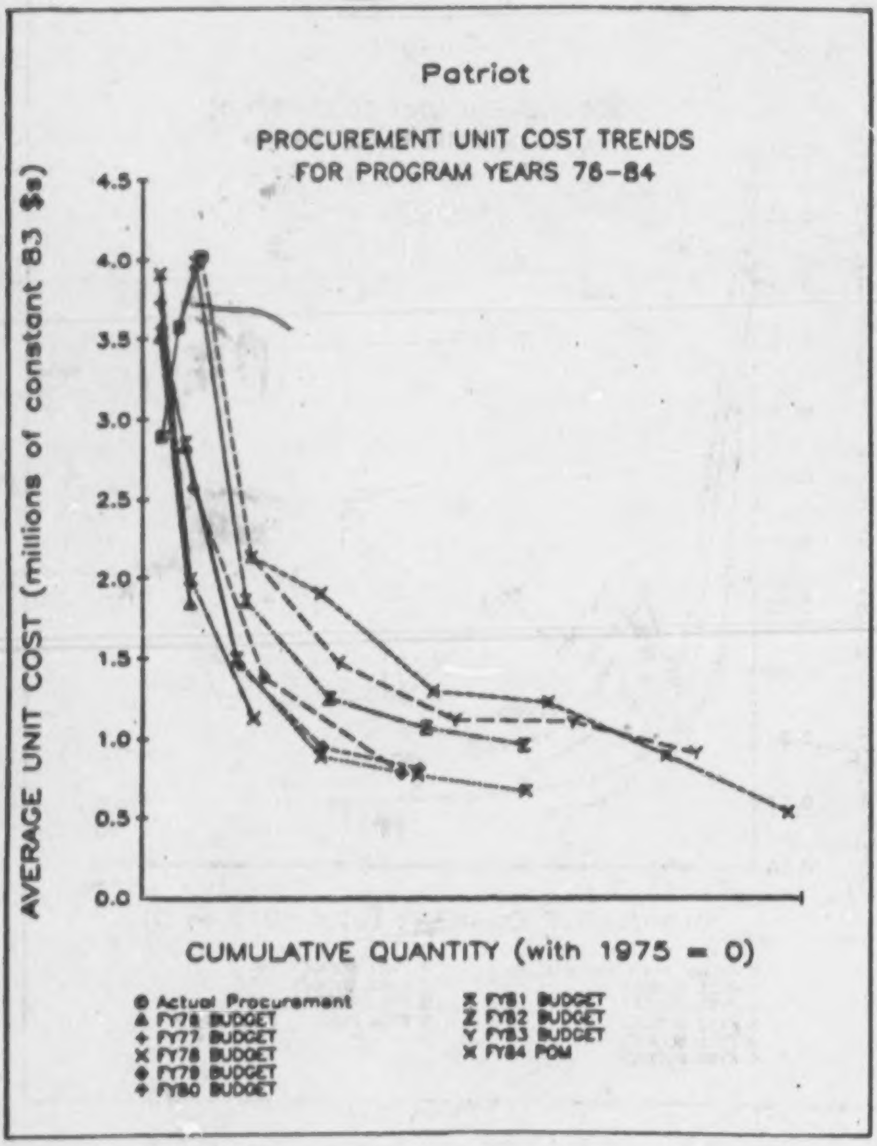
C-12, this is just a Beachcraft Queen-Air. See how the cost went up.



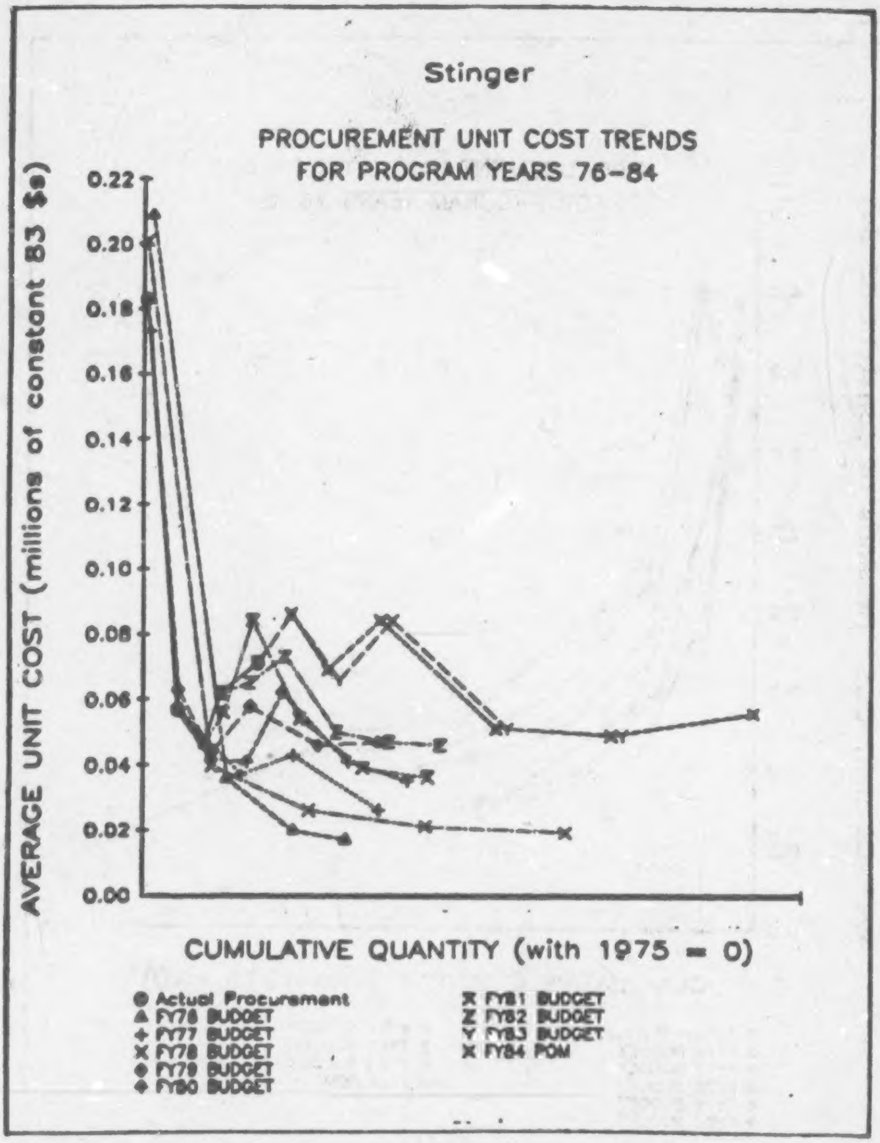
This is an ELEND system. The 1983 budget is here and the 1984 budget is like that.



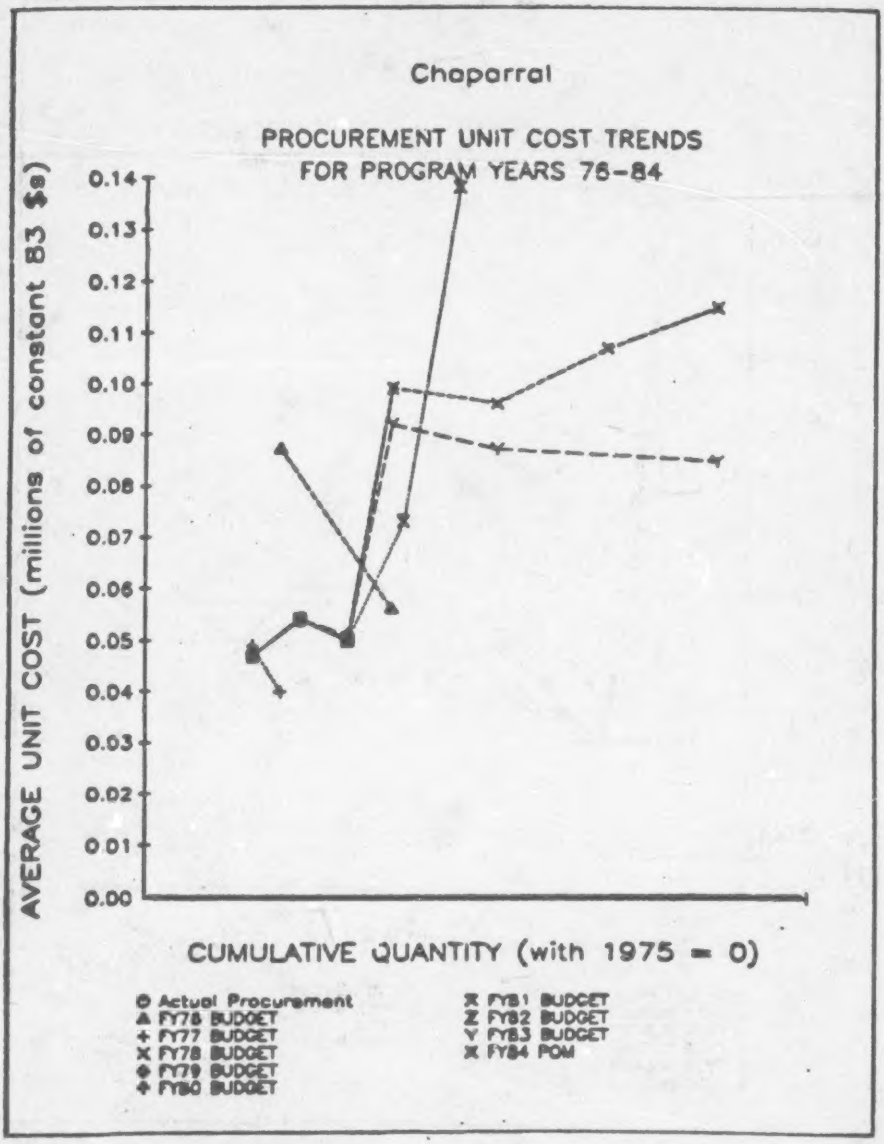
Guardrail, 1983-84.



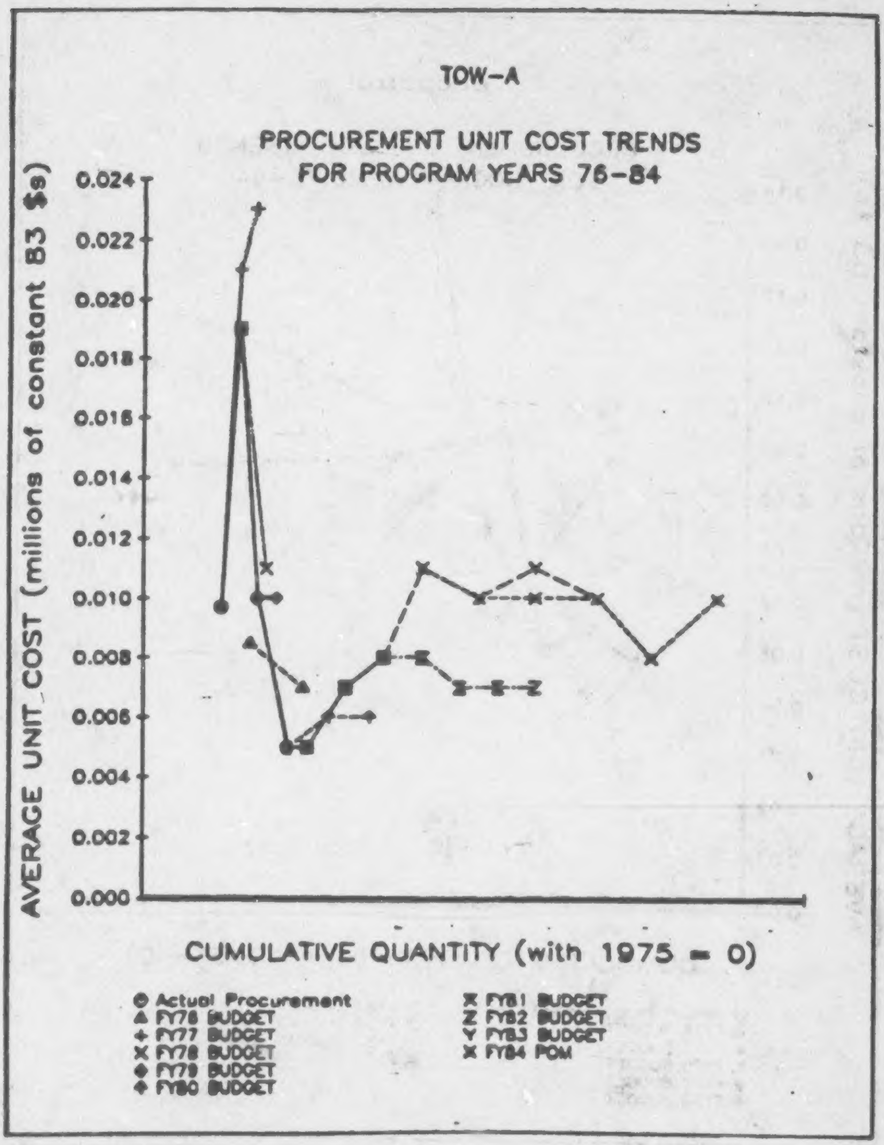
Patriot Missile. This is a reverse learning curve. We go up the curve here and we project these declines. Here is the 1983 and the 1984.



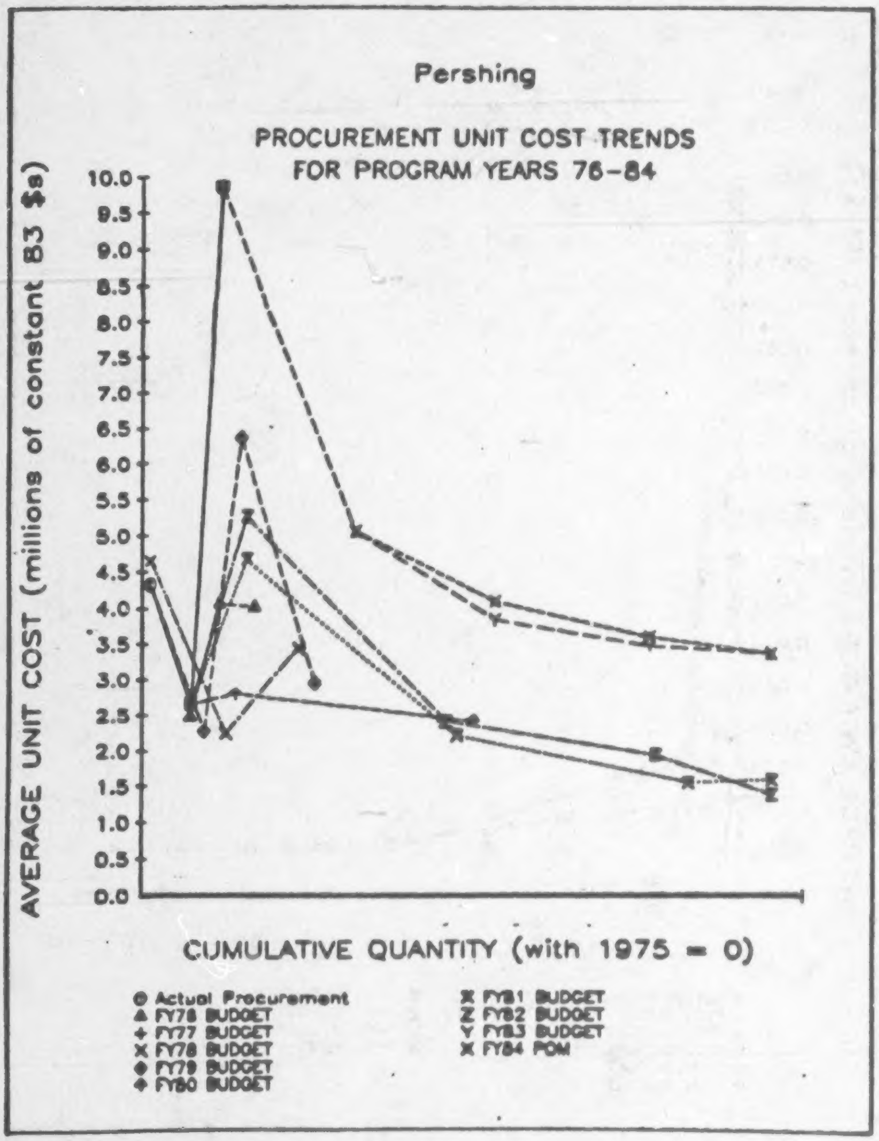
Stinger, a small air-defense missile. There is where we are, there are the early estimates, currently around $70,000 versus initial estimates down around 20,000.



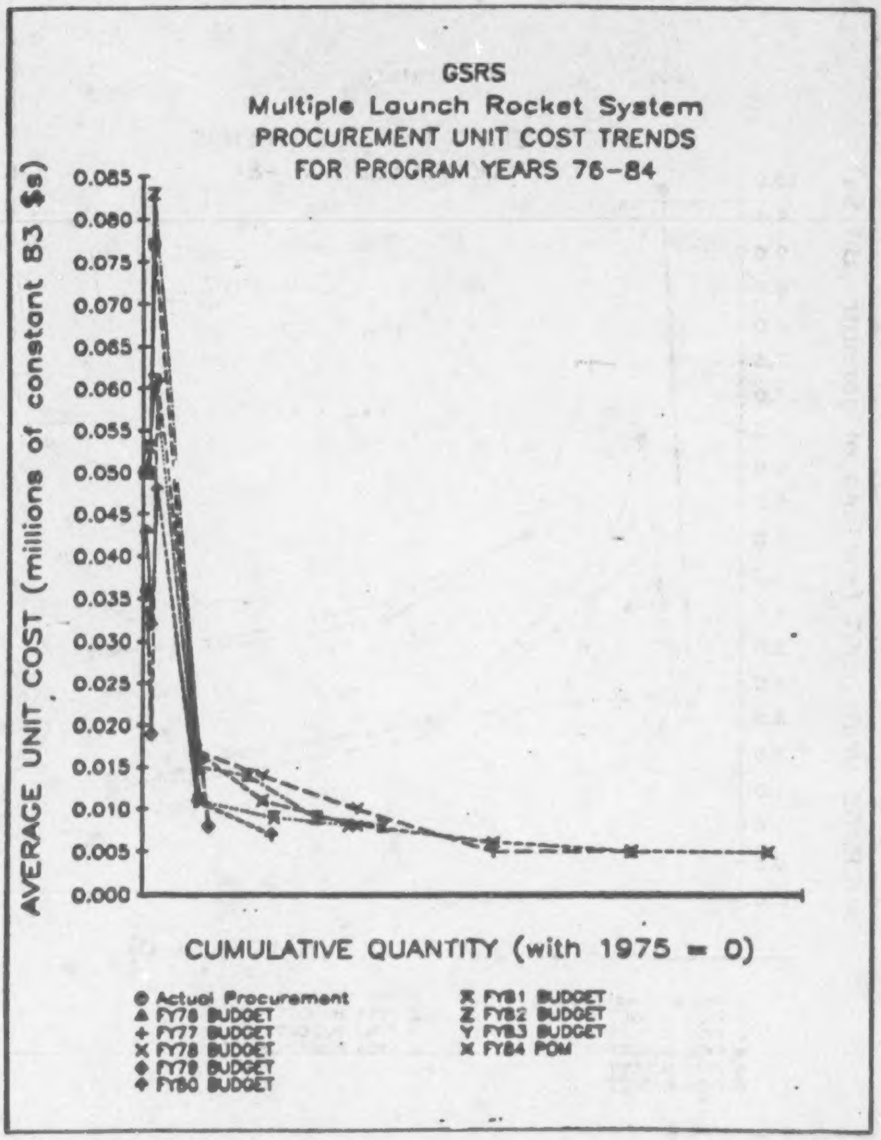
Chaparral, the 1983 budget, 1984 budget.



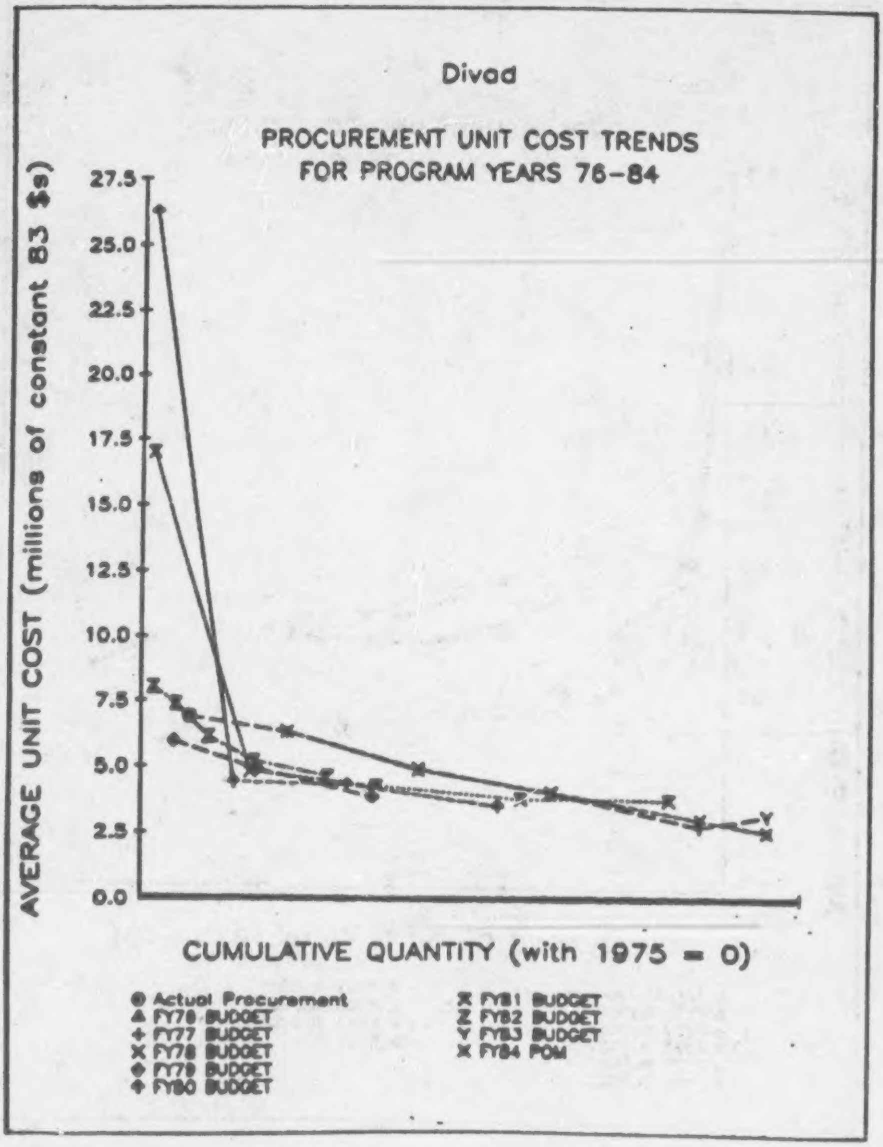
TOW. This a system that is way down the line curve although there have been significant modifications to it.



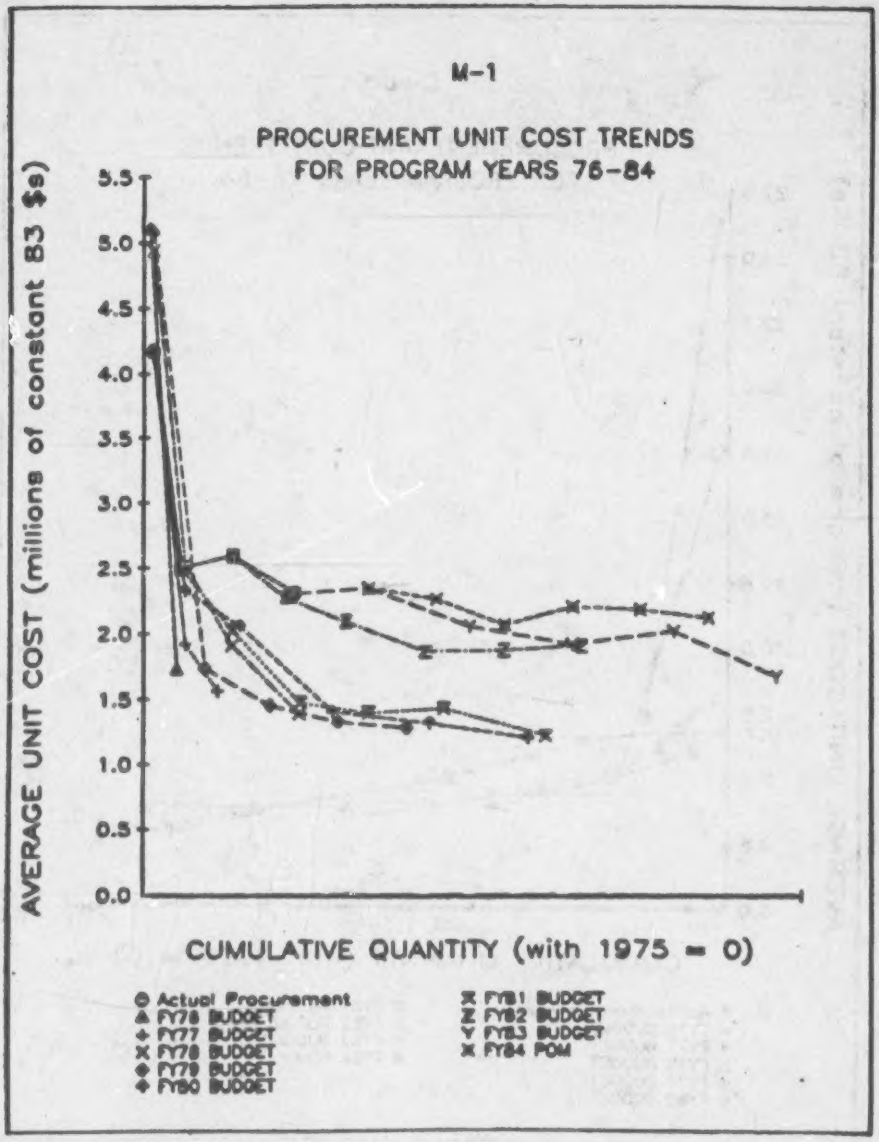
Pershing. Here is where we are, the 1983 and 1984. These were the earlier estimates.



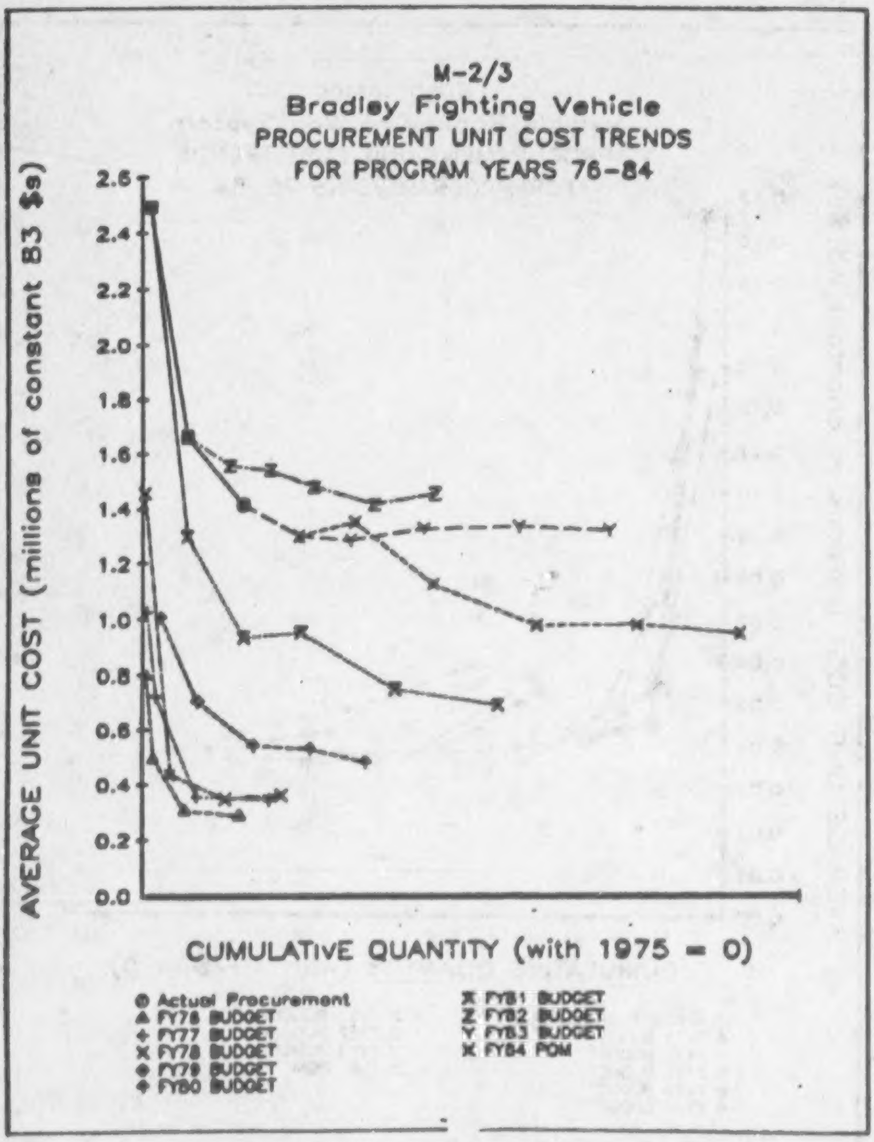
GSRS, the multiple-launch rocket system. A lot of this decline is because you have launchers included with the missiles, and then you have missiles only out here. This one is not doing too bad, it is fairly along where it should be.



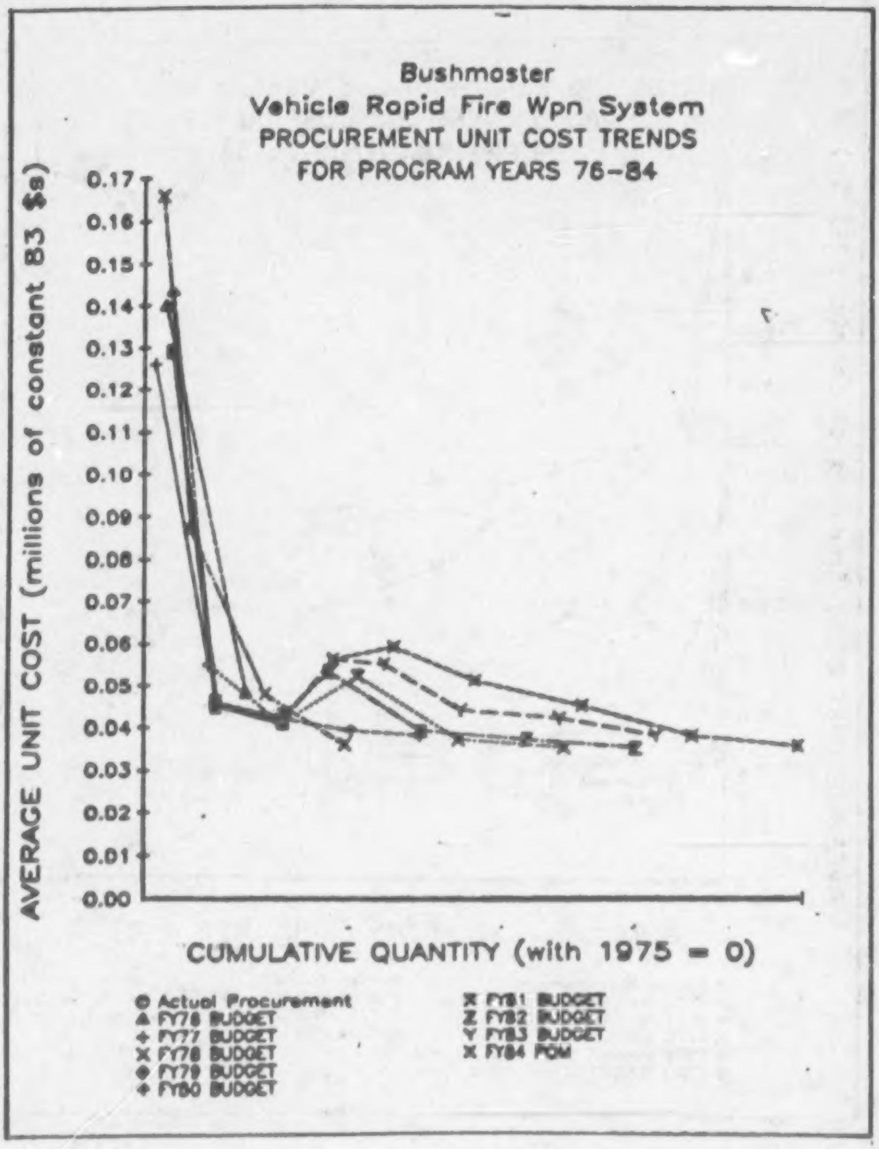
DIVAD, let me see, we are here. No change in the current budget.



M-1 Tank, the 1983 budget and 1984 budget. Here is the 1982 budget, early estimates.



Bradley fighting vehicle. Now, this was one that was first an armored personnel carrier and we changed it to the fighting vehicle concept. So, this is slightly "apples and oranges." Here is where we are.



The Bushmaster 25 mm gun. Here is where we are in 1983 and 1984.

COST/QUANTITY CHANGES BETWEEN FY83-87 FYDP & FY84-88 POM

Cost Increase In At Least 2 Of 4
Common Years (i.e. FY: 84,85,86, or 87)

* 1. AIM-7
2. KC-10
* 3. E-3A
* 4. C-140 B Repl.
* 5. TTBT
* 6. HH-60
* 7. M-X
* 8. ALCM
9. CBU-87
* 10. CBU-90
11. Bigeye
* 12. F-14
* 13. F-18
* 14. AV-8B
15. EA-6B
* 16. CH-53E
* 17. SH-60B
18. E-2C
19. U-12B
20. C-2
* 21. Trident II Msl.
* 22. BGM-109
23. AIM-54
24. AGM-88
* 25. RIM-66C
26. AGM-65C
* 27. Adv. Lightwt Torpedo
* 28. MK-60 Captor Mine
* 29. MK-75 Gun Mt.
30. Trident SSBN
31. SSN-688
* 32. CG-47
33. LSD-41
34. LHD-1
* 35. MCM
* 36. MSH-1
* 37. Destroyer Tender
* 38. TAO
* 39. AOE
* 40. RC-12 Guardrail
* 41. Chapparal
* 42. Patriot
43. Pershing
* 44. M-1
45. Bushmaster

Reduced Production Quantity or Production Rate Slowdown

* Programs (29) Listed Above and In Addition:

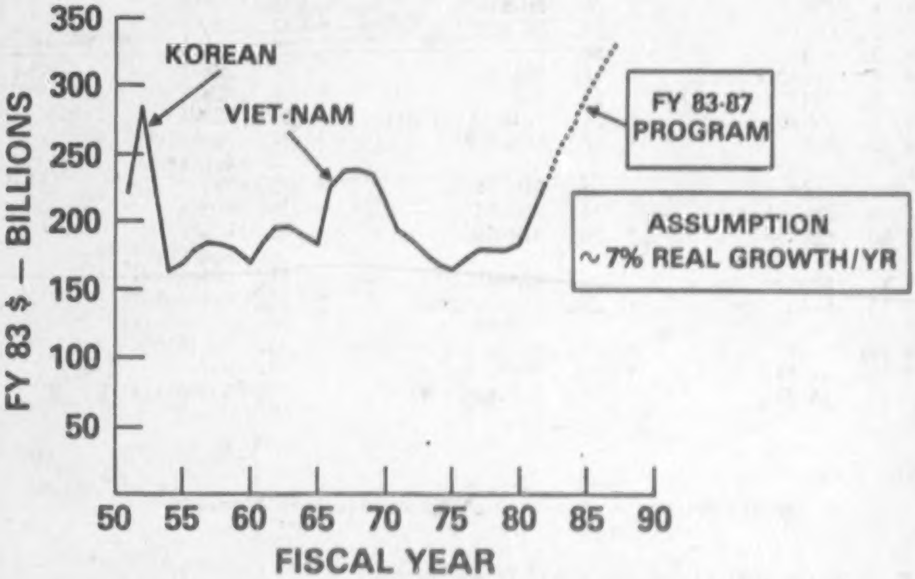
46. AGM-65D
47. AMRAAM
48. MC-130
49. TR-1
50. P-3
51. SH-2F
52. UGM-96
53. AIM-84
54. RIM-67
55. MK-15
56. DD-963
57. AE
58. Stinger
59. LASC
60. M-253 81 MM Mortar

I can summarize this data roughly. This chart shows the systems in the data base that I have—and I may not have shown you some of these slides.

Senator DOMENICI. We will forgive you. [Laughter.]

Mr. SPINNEY. The first 45 are programs that have a cost increase in at least 2 of the 4 common years, between the 1983 to 1987, the President's budget submitted last year, and the first draft of the 1984 to 1988 budget. That was the first draft of the budget that we prepared in May. So, we are talking about a 5-month difference. These programs had cost increases in at least two of these 4 common years when we are looking at those 5-year plans.

In addition, some of the programs may have been stretched out or had reduced quantity procured. These are the programs and the ones with both are marked by the star.



DoD PROGRAM
TOA – CONSTANT FY 83 $

Now, the final thing I want to say—and this is again to emphasize that I think we are dealing with a structural problem here—these changes occurred between January and May of last year, and this occurs within a total budget top line like this. This is a constant-dollar TOA—DOD totals—since 1951. That is where we are, and then this is what we projected.

We are talking about the changes that have occurred under that kind of budget constraint. That is why I think that we are faced with the problem of how we are making our decisions.

That concludes the briefing.

Chairman TOWER. Thank you very much, Mr. Spinney, for a very comprehensive briefing.

I believe it is appropriate to call on Dr. Chu to make any comments that he wants to make on this briefing. I would suggest to Dr. Chu that we do not intend to give him equal time.

[Laughter.]

Chairman TOWER. But in that Dr. Chu heads the department in which Mr. Spinney works, I think it is appropriate, since he has a broad overview in the PA&E process, to have his comments at this time.

Mr. CHU. Thank you, Mr. Chairman. I appreciate that opportunity.

As you can tell—and perhaps understand—we have some reservations concerning this presentation and some of the interpretations of the data that are offered.

I will offer some technical points for the record. In the interest of brevity, let me focus on a few general points that I think are important to keep in mind.

First of all, I think you have to understand that if this kind of measure is used to judge whether or not we are doing a good job of funding weapon systems properly, you pose a Hobson's choice. If we discover a problem and correct it, the correction shows up on these charts as an increase in cost.

In fact, we have devoted considerable effort to uncovering those problems and fixing them. What that will do, of course, is raise costs over time. You will not see the past pattern repeated, but as we make those corrections—as we attempted to do in the 1982 budget amendment, the 1983 budget, and the 1984 submission—costs will show an increase. We are attempting to provide the most accurate estimates possible of future program costs, and trust you will not penalize us for coming forward and being candid with you about the costs of these systems.

Second, I would like to discuss the concern raised by Senator Metzenbaum. These are simple calculations that can be accomplished with data that are transmitted to the Congress every year in the congressional data sheets and procurement annexes. There is nothing new or different from what we send the Congress on a consistent basis. What is different is that the data are plotted in a particular graphic form here.

Third—and again in response to a concern that Senator Metzenbaum and others have raised—we are very sensitive to this problem. That is why Mr. Carlucci made "budgeting to most likely cost" one of the preeminent goals of his famous "32 Initiatives." He worked very assiduously—and I think with some degree of success—in trying to change the system that produced this kind of historical record.

No one quarrels with what the historical record has been. It is not a happy one. But it is one that we aim to improve, and I think we have made some progress.

In fact, if you will study the so-called "spaghetti" chart in the handout that Mr. Spinney provided, you will see that the cost lines for what he calls the 1984 POM—that is, the draft 1984 budget—and the 1983-87 defense program—the Reagan administration's first 5-year defense program—are relatively close to each other. The improvement is particularly striking given the difficulty of making these kinds of changes over a short period of time.

It will take some time for these changes to yield a pronounced and visible effect. But let me suggest several improvements that you can already note. One of the points Mr. Spinney made in his presentation was that in shipbuilding there has been a problem with forecasting inflation properly.

That is one of the reasons the Secretary of Defense asked and received permission to use separate deflators for major commodities, including shipbuilding, in an attempt to deal up front with that problem.

If you study the budget documents that have been transmitted to the Congress for the 1984-88 program, I would commend your attention in particular to the F-16 and UH-60 Blackhawk programs.

These are two of our major multiyear procurement efforts, and I think we are best judged on that initiative and its results.

What you will see in the 1984 column is that the current estimate is very close to—in the case of the Blackhawk, below—what we thought last year at this time we would have to ask the Congress for in fiscal 1984.

So, based upon these examples and others, I would argue that our initiatives are indeed making a difference.

Finally, let me offer an overview of the kind of changes you can expect to see in the future. At the beginning of the hearing, you asked, Mr. Chairman, whether we have looked at the SAR's, and I indicated we had undertaken a preliminary review. When we complete the SAR's, I think you will be pleasantly surprised by the results this year, compared to the projections we made last year at this time. We are indeed, I think, beginning to make progress on this problem.

[Additional information submitted by Dr. Chu:]

TECHNICAL DIFFICULTIES IN MR. SPINNEY'S APPROACH TO ANALYZING DEFENSE COST ESTIMATES

No one doubts that some of the Defense Department's past cost estimates have been unduly optimistic. But Mr. Spinney's analysis of those estimates contains a number of technical errors. In some cases, the errors could lead to erroneous conclusions about what caused our past problems and, therefore, to possible misinterpretations of present estimates, as well as the steps the Department has taken to improve upon its past forecasting procedures. This paper discusses the technical difficulties in Mr. Spinney's approach, so that we can better understand the sources and extent of cost-estimating problems, and the lessons they offer for the future.

The use of procurement costs as reported in the Five-Year Defense Plan (FYDP) may distort the true cost of weapons in any one year because of the effects of advance buys and multiyear contracting.

Mr. Spinney's analysis is performed at the procurement cost level, as reported in the 5-Year Defense Plan. Because procurement unit costs include advance procurement and multiyear contracts, the actual unit costs for any given year may be distorted:

Procurement unit costs include advance procurement for future years netted against advance procurement for the current year. If production rates are not stable, advance procurement costs can produce a distorted picture of true unit costs in any given year. To illustrate, DoD plans to buy 120 F-16's in fiscal year 1985 and 180 in fiscal year 1986. The fiscal year 1985 planning figure includes a credit of $340M from fiscal year 1984 and $445M in advance procurement funding to support the fiscal year 1986 buy. The unit cost figure for fiscal year 1985, therefore, appears to be 5 percent higher than its actual value.

Procurement unit costs include funding for multiyear contracts, which distort procurement unit costs in the first year of a multiyear contract. Again using the F-16 program as an example, $250M was added to the procurement account in fiscal year 1982 to support the multiyear contract initiated that year. This raised the procurement unit cost in fiscal year 1982 by $2.1M (over 13 percent)—even though actual unit costs over the course of the contract will be lower than what they otherwise would have been under a single-year procurement approach.

Changes in investment requirements for support equipment and initial spares can lead to substantial—and erratic—changes in program unit costs.

A further difficulty with the procurement unit cost measure is that it includes the costs of support equipment and initial spares. Changes in requirements for these items, and the timing of the requirements, can badly distort the cost history and cost forecasts for a program. Table 1 illustrates this point for the F-16 program: Support and initial spares costs as a percentage of total procurement costs have varied from a low of 12 percent in fiscal year 1980 to 30 percent or more in fiscal year 1978, fiscal year 1982, and fiscal year 1983.

Some of the fiscal year 1982 and fiscal year 1983 monies represent a "catchup" for past underfunding: When F-16 procurement was increased from 650 to 1,388 aircraft in fiscal year 1978, support costs as a proportion of total procurement costs actually declined from 18 to 14 percent (Table 2). This has now been restored to 18 percent. But correcting the problem perturbs the observed procurement unit costs of the F-16, even though it does not affect the actual "flyaway" unit cost.

Most programs do exhibit traditional "learning curve" behavior when analyzed at the recurring production cost level.

Contrary to what Mr. Spinney suggests in his briefing and report, programs do exhibit learning curves. In case studies of tactical aircraft and other weapon systems, the traditional "learning curve" behavior of declining unit costs as a function of cumulative production can be supported at the recurring flyaway cost level. The F-16 is a good example of this behavior, with recurring flyaway costs for fiscal year 1978 through fiscal year 1980 declining from approximately $11M to $8.5M (in constant fiscal year 1983 dollars).

When a program undergoes a major modification, the learning curve is interrupted. In the case of the F-16, unit costs began increasing in fiscal year 1981, following the introduction of the multinational stage improvement program. This increase will continue through the introduction of an improved engine in fiscal year 1985. Then in fiscal year 1986, once these changes have been absorbed, we expect to see procurement unit costs begin to drop again.

Table 1.—F-16 PROCUREMENT COSTS

[By fiscal year]

	1978	1979	1980	1981	1982	1983	1984	1985	1986
Procurement quantity	105	145	175	180	120	120	120	120	180
Procurement cost ($B)	2.1	1.8	1.7	2.2	1.8	2.2	1.8	2.6	2.9
Procurement unit cost ($M)	20.2	12.5	9.8	12.2	15.4	18.3	15.0	21.4	16.2
Percent of recurring flyaway	54	68	89	80	60	57	73	72	81
Percent nonrecurring	7	3	5	4	4	13	5	3	1
Percent of support	28	22	5	11	15	16	14	16	11
Percent of initial spares	11	7	7	5	21	14	8	8	7

Table 2.—F-16 SUPPORT INVESTMENT AS A PERCENTAGE OF GROSS WEAPON SYSTEM COSTS

[Procurement cost minus initial spares. By fiscal year]

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	Total program
1977	23	25	14	17	13	25					18
1978		24	14	13	13	13					14
1979		25	18	14	12	15	13	11	8	7	14
1980		27	18	10	15	16	13	12	7	1	14
1981		31	23	4	10	16	15	12	11	13	13
1982				5	14	17	17	16	14	12	15
1983				5	11	21	20	18	20	12	17
1984					12	19	23	19	22	13	18

For tactical aircraft, the recurring flyaway cost, on average, accounts for approximately 65 percent of the procurement funding requirements reported in the FYDP. The remaining 35 percent represents one-time or initial costs for which traditional learning curve theory cannot readily be applied.

CONCLUSIONS

Procurement unit costs—the measure used by Mr. Spinney—must be used with care, and with an explicit acknowledgment of what they contain, in analyzing the cost history of and cost forecasts for any given weapon program. They are not appropriate for an analysis of the learning curve. They must be adjusted for advance procurement monies (which was not accomplished in Mr. Spinney's presentation). They must be interpreted in the light of major modifications to a program, to meet new threats or to incorporate new technologies. They must also be interpreted in the light of changing support requirements, and the timing of funding for those requirements.

Insufficient attention to the last two issues—modifications and support costs—was a major factor in past underestimates of weapons' costs. The procedures now in place in the Department are designed to deal with these issues on a timely basis, and to ensure that the past mistakes are not repeated. But our analysis of those mistakes must rest on a solid analytic foundation—and not just a handy or easily computed measure—or we are likely to engender new mistakes, just as serious as those we hope to correct.

Chairman TOWER. Thank you, Dr. Chu.

We will begin the questioning now. I think we will just follow the procedure of addressing your question to either Mr. Spinney or to Dr. Chu and permitting either one of them to comment on questions answered by the other, if they choose to do so.

Let us limit the questioning to 5 minutes for the first round—it now being 5 o'clock in the afternoon—so that everybody gets an opportunity to ask a question. Then we will do a second round, a third round, or whatever is necessary to complete the questions.

First, I think you answered the question in your comment, Dr. Chu, on Mr. Spinney's treatment of nonlearning in the real world. He said, "He may not be learning." Do you agree with that statement?

Mr. CHU. Sir. I did not quite hear you. Could you repeat the question?

Chairman TOWER. We may not be learning.

Mr. CHU. We may not be learning? I think we are learning, sir, from our past experience. We are making a very strenuous effort to study the historical record and make sure that we have priced programs properly and not underestimated their cost.

Chairman TOWER. Mr. Spinney, you said that we need a stable production environment. Is that correct?

Mr. SPINNEY. It would be desirable to have a stable production environment, yes, sir.

Chairman TOWER. It is desirable to have a stable production environment.

Mr. SPINNEY. Absolutely.

Chairman TOWER. And you said, increased production rates can be expected to drive down cost; is that correct?

Mr. SPINNEY. Yes, sir.

Chairman TOWER. And that program stretchouts cause costs to go up.

Mr. SPINNEY. Yes, sir.

Chairman TOWER. Then, would you conclude—and you also said we need more money for defense; am I correct on that?

Mr. SPINNEY. Yes, sir.

Chairman TOWER. That was one of the first statements on your first view chart.

Mr. SPINNEY. It was also one of my last statements.

Chairman TOWER. That being the case, would cuts in the defense budget therefore exacerbate the problem that you are describing, or would they cure it?

Mr. SPINNEY. Cuts?

Chairman TOWER. Cuts in the defense budget.

Mr. SPINNEY. No, sir. I am not sure I will go so far as to say they would exacerbate it, they certainly would not do anything to cure it. The process would probably continue to operate like it has operated, that is my view. It would make things worse.

Chairman TOWER. Yes.

Mr. SPINNEY. In my mind much worse.

Chairman TOWER. Thank you, Mr. Spinney.

Do you have any further comment on that, Dr. Chu?

Mr. CHU. No, sir.

Chairman TOWER. Senator Domenici?

Senator DOMENICI. I can see why you invited the Budget Committee over here, Senator Tower. You need more money, not less. [Laughter.]

First of all I want to say, while the presentation was lengthy and I am not yet sure how much it applies to the next 10 years, hopefully it will not have as much validity. But I think it irrefutably establishes that costs of systems have been underestimated. If your method of input into analyzing that system is correct, it had been a regularly occurring thing that is easy to look at and say it is there.

I frankly think we got a great deal out of it. I appreciate the effort of my distinguished members of the Budget Committee that pushed me to ask you, Senator Tower, to have this meeting.

Let me ask you, Doctor, you do not deny, do you, that this mismatch has occurred in terms of current estimates versus outyear costs for weapon system?

Mr. CHU. I would take some exception to "current" estimates. I think there is no denying the historical record.

Senator DOMENICI. Well, I do not mean "current" in terms of yours now. I mean the year that the estimates are made, history reveals——

Mr. CHU. Yes, sir, there has been a serious historical problem of this kind. That is one of the reasons that Mr. Carlucci made "budgeting to most likely cost" one of his leading precepts and, in fact, insisted on a number of changes, which I have attempted to describe, to deal with that problem.

We have been trying to learn from that history and to make some adjustments as a result.

Senator DOMENICI. In the present budget for weapons procurement, have you learned anything from history that you are now putting into your estimating that would make them more realistic in terms of overrun, overcost potential?

Mr. CHU. Yes, sir. I think that gets directly at the decision to insist that, in developing their budgets, the service Secretaries consider so-called independent cost estimates for major systems. Those estimates are designed specifically to reflect the historical factors to which you have alluded.

Similarly, at the level of the Secretary of Defense, we have required that independent cost estimates be prepared for certain high-priority systems and, in fact, have made changes in order to be sure that we do not repeat past history.

Take modifications, for example. One of our explicit objectives in reviewing the budget is to insure that planned modification programs are properly funded.

Senator DOMENICI. Mr. Spinney, were you able to quantify in some percentage manner if history repeats itself what the underestimating for procurement would be in the 1984 budget?

Mr. SPINNEY. No, sir, I have not really tried to do that.

Senator DOMENICI. Your graphs are very relevant, but if you could go one step further and quantify it for simple people like us in terms of, historically the overcosts have averaged x percent and than look at the present budget and see if there is any reason for it to be the same, it seems to me with the computers you have, you ought to be able to do that. Is that possible?

Mr. SPINNEY. Well, you can always do something like that. How good it would be is another point. I do not think that is going to lead too far, really. You can get a "gut" feel for what you think the problems are, based on the situation, and that is all the analysis would reveal I think because you have to establish a common base line.

For example, what year do I start with to say this is the base line from which I am going to measure cost growth, should it be 1976, 1977, 1978 because it is a constantly fluctuating thing.

Senator DOMENICI. I understand that. This is my last question, Mr. Chairman.

What I am getting at is, if history repeats itself to any significant degree, then the budget authority versus outlay estimate for 1987 and 1988, for the present procurement program, would be significantly underestimated if you want to buy the same hardware and do the same modernization; is that not correct?

Mr. SPINNEY. Absolutely, yes, sir.

Senator DOMENICI. You have no idea what dimension that takes, however.

Mr. SPINNEY. It would be a big number. If history repeated itself—remember, that is how you asked your question.

Senator DOMENICI. I started the question.

Mr. SPINNEY. It could be as much as 30 percent. I do not know, it could be a large number.

Senator DOMENICI. What do you think, Doctor?

Mr. CHU. We are determined to insure that history does not repeat itself. That is our primary objective here.

Senator DOMENICI. Do you have examples that you might furnish to us, some living proof that you are going to get that done?

Mr. CHU. Yes, sir. I would cite, as I did a moment ago, the F-16 and the UH-60 Blackhawk as two examples of programs in which we have seen significant progress. If you look at the prices, using the kinds of measures that Mr. Spinney has used and the figures that are in the budget today, their costs are less than or equal to what we projected last year at this time for 1984.

So, I would contend that, through multiyear procurement programs, we are starting to get a hold of this problem. The F-16 and UH-60 are two of our major multiyear procurement efforts.

Senator DOMENICI. Do you have any examples other than those that you might furnish to the two committees?

Mr. CHU. I would be glad to. Two other examples are the multiple launch rocket system [MLRS] and the KC-10 tanker-cargo aircraft.

Senator DOMENICI. We would like to see those if we could, just for ideas.

Thank you very much.

Chairman TOWER. Senator Goldwater?

Senator **Goldwater**. This morning we had testimony from the Army that their overruns this year are 0.3 of 1 percent. Now, I think that is progress.

Mr. **Chu**. Yes, sir. That is their preliminary SAR estimate, and it is down from a much, much larger figure last year at this time.

That was my implication in saying that, when we deliver the SAR's and the final figures to you, I hope you will be pleasantly surprised by their content, relative to last year's performance.

Senator **Domenici**. I forgot to ask you one question.

Mr. **Chu**. Yes, sir.

Senator **Domenici**. What is the inflation rate that you were permitted to use by the President for defense procurement for the year 1984?

Mr. **Chu**. I do not recall the number off hand, sir. I will be glad to provide it to you.

Senator **Domenici**. Can you ask someone?

Mr. **Chu**. We will get someone before the hearing is over to provide it for you.

Senator **Domenici**. All right.

The inflation rates DOD was permitted to use are: 6.9 percent for major commodities (aircraft, ships, missiles, and tracked combat vehicles) and 5.3 percent for other procurement.

Chairman **Tower**. Senator Metzenbaum?

Senator **Metzenbaum**. Dr. Chu, the real issue, I think, is that Mr. Spinney has done a very commendable job in pointing out how costs have increased on a traditional basis.

Now, your testimony indicates that we aim to improve the past, we have made some headway. Your responses a moment ago would indicate that there has been some headway.

But I find some difficulty in accepting that representation. I have before me the Los Angeles Times, dated February 2, 1983, which reads,

> As Defense Secretary Caspar Weinberger was telling a Senate committee Tuesday, that he has virtually eliminated unforseen cost overruns in defense programs; that the Pentagon was completing plans to reprice six major weapons programs to reflect more than $2 billion in higher costs. An internal Pentagon document obtained by the Times shows that the programs which have risen beyond anticipated costs also include the F-16 Hornet besides the A-6, the F-15, the F-16 fighter aircraft, the MC-130H transport plane, the Army's AH-64 helicopter, the Patriot missile, and unspecified shipbuilding programs to completed in the future.

Under those circumstances, how can you say that you are making headway at the present time?

Mr. **Chu**. Well, first of all, sir, I am afraid that is a case in which the reporter had his facts slightly wrong. If I have spotted correctly the document that he used as the basis for the story, I think he misread some of the figures.

The changes to which he referred were in large measure made by the Secretary before the budget went to the Congress. In fact, in a number of cases, they reflect the results of the independent cost estimates that the Secretary has directed we undertake.

So they are in fact, I would argue, evidence of our determination to correct the problem—not the reverse. The changes to which he is referring are changes——

Senator METZENBAUM. Would you counter the Deputy Secretary, Under Secretary for Defense for Acquisition Management, William Long, and his representations where he said,

> There are few demonstrable results so far. Unfortunately, the mills of the Gods grind slowly and people are doing business here the way they are used to doing business. Rome was not built in a day.

Was the Deputy Under Secretary of Defense for Acquisition Management correct, or was Mr. Chu correct that the improvements have been made?

Mr. CHU. Well, first of all, if the statement from Mr. Long were put into context, I believe you would find that he is referring to the entirety of the acquisition improvement management program and not just to this one initiative.

Senator METZENBAUM. I would agree with that.

Mr. CHU. And I think that that is the thrust of his statement. Remember, there were 32 initiatives. We are working our way down the list just as rapidly as possible.

Senator METZENBAUM. Well, let us talk about the 32 initiatives. Are they in place? Have the directives been issued?

Mr. CHU. A large number have. Yes, sir.

Senator METZENBAUM. But the fact is that the Armed Forces Journal of February 1983 sent a "dart" to the Navy on the basis of, as this issue went to press, "The Department of Defense directive still had not been issued almost two years after Carlucci's 32 intitiatives were agreed to and announced."

Is it not the fact that the Carlucci initiatives have never actually been put in place and no directive in connection with all of them has been issued?

Mr. CHU. No, sir, I think that is not accurate.

Senator METZENBAUM. Well, was the Armed Forces Journal wrong?

Mr. CHU. I believe the directive to which the Armed Forces Journal was referring was a particular acquisition directive that has been under review.

Let me cite a particular step.

Senator METZENBAUM. I am talking about the 32 initiatives, Mr. Chu.

Mr. CHU. No. That directive does not cover all 32 intitiatives. Let me speak to the initiative of concern here, "budgeting to most likely cost."

I will be glad to provide for the record if you like, Mr. Chairman, a copy of Mr. Carlucci's memorandum of April 1981. That system is now well on its way to being put into place. We have used it.

[The information follows:]

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS; CHAIRMAN OF THE JOINT CHIEFS OF STAFF; UNDER SECRETARIES OF DEFENSE; ASSISTANT SECRETARIES OF DEFENSE; GENERAL COUNSEL; AND ASSISTANTS TO THE SECRETARY OF DEFENSE

SUBJECT: IMPROVING THE ACQUISITION PROCESS

On 2 March 1981, I directed a 30-day assessment of the Defense acquisition system with the priority objectives of reducing cost, making the acquisition process more efficient, increasing the stability of programs, and decreasing the acquisition time of military hardware. The report, delivered to me on 31 March 1981, provided many specific recommendations and posed a number of major issues for decision.

I have discussed the report with the Steering Group, the Joint Chiefs of Staff, the Service Secretaries, and the Under Secretaries and selected Assistant Secretaries of Defense. Based on the report and those meetings, the Secretary and I have decided to make major changes both in the acquisition philosophy and the acquisition process itself. We are convinced that we have now a historic and unique opportunity to significantly improve the Defense acquisition system. We ask for your cooperation and assistance in carrying out these decisions.

The acquisition decisions are recorded in detail in the attachments to this memorandum. I would like to highlight here the major decisions and their implications for DoD in the following paragraphs.

DoD acquisition management philosophy.—The DoD management philosophy that I described in my 27 March 1981 PPBS decision memorandum also applies to the acquisition policy and process. Through controlled decentralization, subordinate line executives will be held accountable for the execution of policy decisions and programs as approved. The review of the acquisition process is a good example of participative management where the Services and other DoD staffs, working together, have jointly agreed on what should be done. All points of view were considered prior to decision. Now that decisions are made, the Secretary and I expect full support of DoD staffs and the Services in implementation.

I affirm the following acquisition management principles:

1. We must improve long-range planning to enhance acquisition program stability.
2. Both OSD and the Services must delegate more responsibility, authority and accountability for programs; in particular, the Service program manager should have the responsibility, authority and resources adequate to execute efficiently the program for which he is responsible.
3. We must examine evolutionary alternatives which use a lower risk approach to technology than solutions at the frontier of technology.
4. We must achieve more economic rates of production.
5. We must realistically cost, budget, and fully fund in the FYDP and Extended Planning Annex, procurement, logistics and manpower for major acquisition programs.
6. Readiness and sustainability of deployed weapons are primary objectives and must be considered from the start of weapon system programs.
7. A strong industrial base is necessary for a strong defense. The proper arms-length relationships with industry should not be interpreted by DoD or industry as adversarial.

DoD—OMB and Congress.—Many of the decisions announced in this memorandum can be implemented within DoD's legislative authority. Some decisions need to be coordinated with OMB. A number of recommendations will need Congressional action before final implementation can take place. In those latter cases, we will work closely with appropriate Congressional committees and their staffs to explain and justify our recommendations for changes to legislative requirements.

DoD—industry relationship.—While DoD should be tough in contract negotiations as part of the buyer-seller relationship, this does not mean that relationships between management and industry should necessarily be adversarial. Industry and government have a shared responsibility and must assume a new spirit of cooperation. A healthy, innovative, and competitive industrial capability is a primary national objective. I direct all top DoD management, in OSD, in JCS, and in the Services, to ensure this is understood at all levels.

Economies, efficiencies and savings.—A primary objective in streamlining the DoD acquisition process is reducing costs. All DoD staffs and Service managers should keep this uppermost in their minds. We all must be more aggressive and imaginative in looking for ways to save money throughout all phases of the acquisition process. I look to each of you to use your enhanced authority to bring about major savings and improved methods of operation.

Decisions to improve acquisition policy and process.—The Secretary and I are determined to reduce substantially cost overruns, deploy adequate quantities of needed systems that are operationally effective and ready, and do this in the shortest possible time. We are convinced that the actions directed in the attachment will significantly contribute to achieving these objectives. The major decisions for improvement can be summarized in four categories:

Reduce acquisition cost.—Increase program stability by fully funding R&D and procurement at levels sufficient to ensure efficient cost, supportability and schedule performance, and minimizing changes to the approved program.

Implement multi-year procurement to improve production processes, increase economy-of-scale lot buying, decrease financial borrowing costs and reduce administrative burden in contracting.

Reduce administrative costs by simplifying procedures, seeking relief from costly legislative requirements and reducing the number of DoD regulations and directives.

Encourage capital investment to increase productivity in the defense industry by improved contracting, more reasonable risk sharing, and increased incentives.

Promote Services use of economic production rates to reduce unit costs and decrease acquisition time.

Require Services to budget to most likely cost to reduce cost overruns and provide stability.

Shorten acquisition time.—Implement Preplanned Product Improvement to reduce unit costs and decrease acquisition time.

Provide adequate "front end" funding for test hardware.

Improve weapons support and readiness.—Stress acquisiton strategies that provide incentives to contractors to attain reliability and maintainability goals.

Establish readiness objectives early in development programs.

Improve the DSARC process.—Move toward controlled decentralization of the acquisition process to the Services.

Reduce the data and briefings required by the Services and other DoD staffs.

Tie the acquisition process more closely to the PPBS.

Implementation of the decisions.—Implementation of the decisions announced in this memorandum is as important as the decisions themselves. Many decisions, even those within DoD's authority, will take time to implement fully. A large number of DoD managers will have to take part on a worldwide basis.

I assign overall responsibility to the Under Secretary of Defense for Research, Engineering and Acquisition for monitoring and follow-up of all decisions in this report. I expect him to establish an appropriate implementing and reporting system. The first report will be submitted to me by the end of May and every month thereafter until further notice.

Both the Secretary and I appreciate the work you and your staffs have provided during this assessment.

Senator **Metzenbaum**. You have used it, but the directive itself has not been issued; has it?

Mr. **Chu**. Well, I would take a memorandum signed by the Deputy Secretary of Defense saying, "You will consider independent cost estimates," as a directive. The particular acquisition directive to which the Journal article refers is a different and somewhat separate matter. It is concerned with some, but not all, of the Carlucci initiatives.

If I might point to a different one. Mr. Carlucci stressed very strongly the value of mulityear procurement, and I think our record on proposing a number of multiyear procurement programs to the Congress is well known. The Congress has approved a number of these requests.

We will be proposing additional such initiatives this year. Again, I would call that action.

Senator **Metzenbaum**. Well, let me ask you, is this statement wrong—again in the Armed Forces Journal—

> One important element of his plan to reform the defense acquisition process, DOD Directive 5000.2, Major Systems Acquisition Procedure, has languished since October 20 awaiting final coordination from the Navy.

Now, is that just a total misrepresentation?

Mr. **Chu**. That directive was not issued at the time of that story. But again I would stress that that directive is not the totality of the Carlucci initiatives, nor is it the only vehicle the Deputy Secretary of Defense has to direct that things happen and to make sure that they happen.

Senator **Metzenbaum**. Mr. Chairman, my time has expired. I gather we will have another opportunity?

Chairman TOWER. Oh, Yes; we will have as many rounds as we want. Senator Goldwater?

Senator GOLDWATER. Dr. Chu, are you aware of any Member of Congress who has written to the Secretary of Defense to propose canceling a program in his or her district because of cost overrun?

Mr. CHU. Not to my knowledge, sir.

Senator GOLDWATER. I ask that question for a purpose. I was interested in Mr. Spinney's figures, they went back into the last decade. They were not brought up to date, they dealt with 1974, 1975, and 1976. He mentioned the A-10.

Last year, the Air Force told us they did not need more A-10's, they had 740 of them. No foreign country has ever bought one, it is too slow now. I was one of the big advocates of that airplane and I have flown it and fired the gun.

We knocked it out of our budget. Now, what happened, in the House the Appropriations Committee put it back in because it happens to be in his home State.

The Speaker of the House is interested because they make the engines in his home State.

So, in effect the airplane did not get knocked out but we prevented any more money from going to it. This is our biggest problem. When we say to these people who are vitally interested in cutting defense, "OK, let us start in your own back yard," you never heard such hell raised in your life.

If we do not get to the point where we think more of defending the United States than defending Long Island or Ohio—with all due respect—or Pennsylvania, we are going to be in a hell of a fix.

Chairman TOWER. Or Arizona.

Senator GOLDWATER. I should have said Texas. [Laughter.]

That is all I have to say.

Mr. Spinney, you made the same mistake that so many people make who work in this field, you go back into ancient history. We will all admit mistakes were made, I can give you more mistakes than you have ever heard of.

But we are thinking of today and tomorrow. That is all this committee does is break our necks trying to save a dollar here and there, and it is not easy.

That is all I have.

Chairman TOWER. Senator Sasser?

Senator SASSER. Thank you, Mr. Chairman.

Mr. Spinney, your presentation today was lengthy but I found it to be very educational. I want to commend you for the study that you did and commend your superiors who commissioned you, I suppose, to do that study.

A few days ago, the Secretary of Defense, Mr. Weinberger, appeared before the Senate Budget Committee and we were interrogating him at that time about the defense budget. We asked the secretary if he was not underestimating, if DOD was not underestimating the cost of procurement in the outyears, and if indeed they were budgeting enough money to purchase the defense potential that he was talking about.

He answered that there was enough money budgeted, that they were not underestimating. We asked him about the Spinney report.

The Secretary dismissed your report, Mr. Spinney, offhand simply by saying that the report was—to quote him—"flawed."

My question to you today is, Is your report flawed and have your superiors indicated to you that the report is flawed? And if they have, in what way are they saying the report is flawed?

Mr. SPINNEY. Well, first of all, there is some conflict of interest in that question. No one likes to think their own word is flawed.

All I can say is the methodology, as you saw, was very straight forward and simple. We triple checked all the input data and we exercised as much quality control as we could. There are some minor distortions in the methodology. I do not think they affect the outcome.

I think the main argument that has been used against it is that it is historical. Senator Goldwater alluded to the fact that we displayed a lot of past mistakes and there is no question about that, you are correct, sir.

However, I am trying to illustrate a structural problem. I did include estimates, I used the first estimate of the 1984 budget in there. I also had the 1983 budget and 1982 budget. So, it is fairly recent history there.

I have in my files the second estimate of the 1984 budget and the pattern has not substantially changed. We could probably do the final estimate as soon as we get the computer tapes on the 1984 budget on line. I am not sure exactly when that would be. That is as current as you can make something like this.

The other thing is that you have to remember, whenever you are trying to do an analysis like that we are dealing with an evolving situation. There are obviously new factors continuously entering in.

However, I think it is important to recognize that all facts are history. Not all history is fact. Sometimes history is distorted. But all facts are history. If we are going to just say that you cannot do an analysis because it is history in nature, we are in essence denying the scientific method because all physical facts observed in a laboratory are history. All data, say, in an economic analysis is history.

Senator SASSER. I agree with you on that, Mr. Spinney. I think you are quite right. Has anybody in the Department of Defense told you that your study is flawed?

Mr. CHU. May I respond, Senator, to that question, since I am his supervisor?

I have in fact indicated to Mr. Spinney, and on several occasions, that there are some substantial methodological problems with this particular measure—not with the arithmetic computations themselves.

There are problems with this measure. One can debate whether they are slight distortions, as Mr. Spinney indicated, or whether they are more substantial in the case of particular programs.

Second there is a set of technical issues on which I will be glad to submit material for the record so that we do not delay these proceedings.

More important, I think, is that Mr. Spinney's presentation does not in any way attempt to take into account the kinds of changes that we have put into place to try to deal with this problem in the future. I think that is the major flaw, the major failure.

Senator **Sasser**. So, historically the Spinney study is correct and not flawed.

Mr. **Chu**. No, sir. I think even on a methodological basis, in terms of judging whether unit costs actually went up or down, there are some important problems in particular cases with the kind of measure used. It is a straightforward measure; it has the advantage of simplicity. But it also has some technical problems associated with it.

Senator **Sasser**. The current defense budget for fiscal years 1983 through 1988 calls for an outlay of $2 trillion during this 5-year period.

Now, for the benefit of the public record—and I will address this question to you, Mr. Spinney, and given your historical knowledge of past cost overruns and present cost overruns in major weapon systems, and particularly in light of the complexity of our new weapon systems—what would you say is a more realistic price tag for this $2 trillion defense budget between 1983 and 1988?

Mr. **Spinney**. I cannot answer that question, Senator. I have not done any kind of analysis on it.

Senator **Sasser**. You could not give us a percentage, based on your historical studies, of how much we might have underestimated procurement?

Mr. **Spinney**. No, sir. As I was saying to Senator Domenici, you have to draw a base line somewhere—if you want to use 1976, 1977, 1978, 1972. It is a very difficult thing to do and, as Dr. Chu stated, there have been changes put in place that hopefully are going to address some of these problems—ideally all of them.

I have not done the work and I would just not want to answer the question in any kind of quantitative way.

Senator **Sasser**. My time is up. Thank you, Mr. Chairman.

Mr. Spinney, we appreciate—I for one appreciate—very much your study and I want to commend you for doing it; I appreciate it.

Mr. **Spinney**. Thank you, sir.

Chairman **Tower**. Senator Grassley?

Senator **Grassley**. I am glad I have been able to hear your report, Mr. Spinney. I am not disappointed for having to wait a month to hear it. It has been worth it.

Frankly, I am shocked at what I hear. If what you are saying is true, then we not only have a budget problem but also a major problem in national defense.

Mr. Spinney, were you ever asked by Mr. Chu to give him the briefing you have just given us here, and which he has now just heard?

Mr. **Spinney**. I have had several meetings with him on it.

Senator **Grassley**. Did you ever go through it in the length that you did with us just now?

Mr. **Spinney**. No, sir.

Senator **Grassley**. OK.

Mr. **Chu**. May I correct the record on that, Senator? I in fact had a meeting with Mr. Spinney last December on this briefing, at which time we went through all the charts you saw in part 1, and I received a copy of all the charts that we discussed in part 2.

Mr. **Spinney**. That is correct.

Senator GRASSLEY. Mr. Chu, Alice Rivlin, the head of the Budget Office, said, "There is no ability to validate savings of the Carlucci initiatives, nor could they ever be validated." That is what she said in response to a question I asked her.

What is your evidence that the initiatives are working?

Mr. CHU. I think what I would point to, sir, are the improvements in some of the programs that I named as indications of what we are doing. Let me also point to a macro improvement.

One of the initiatives—again, the "budgeting to most likely cost" initiative—involved a change in the deflator that we use to price the defense budget for major procurement commodities. As has been much publicized in the press, for the first time in many years, in 1983 we actually overestimated inflation.

The "budgeting to most likely cost" initiative was used for the first time in the fiscal year 1983 budget. I think this year even the CBO would agree that to lower the defense deflator relative to what we thought last year would be necessary, is meritorious and, I think, a reflection of the wisdom of trying to provide more accurate estimates to start out with. We have a happy windfall to take as a result, instead of an unhappy surprise.

I believe the CBO is relatively happy—if I may paraphrase the report—with the department's inflation estimates.

Senator GRASSLEY. You have talked about two systems being repriced. How many systems have been repriced? I have an understanding that there have only been 4, and that 20 were refused repricing.

Mr. CHU. No, sir, I do not think that is accurate. We have in fact changed the costs for a number of systems. I believe a couple dozen systems have been affected in one way or another over time by these kinds of independent cost estimates. Some of the very large programs have gotten a lot of attention. They have led to a list from which you have singled out four here.

But there is a longer list of systems that have been affected, and a still longer list of programs that are under constant review.

Senator GRASSLEY. In regard to the point of low balling, underestimating, there is naturally competition within the Department for various programs. Mr. Spinney spoke to that. I think that is generally agreed upon.

Perhaps one branch wants to get ahead of another, or some sort of competition exists and causes low-balling. Now, if that is a problem, what is being done to avoid such underestimating.

Mr. CHU. One of the things we do in a contract proceeding, sir, is to go through a "should cost" excercise. We do not simply take the contractor's word that he can really deliver a system for a particular price. Again, that is one of the central elements in these independent cost estimates—examining a particular firm's track record and historical cost patterns for similar systems and asking: Can you really complete a program for that kind of money?

That is an important element in our review process. We value the benefit of competition but, as you suggested, do not wish to overdo it.

Chairman TOWER. Senator Bingaman?

Senator BINGAMAN. Thank you, Mr. Chairman.

Mr. Spinney, I wanted to ask about part two in particular of your briefing. The charts that you showed there, can copies of those be made available to the committee? I heard Dr. Chu indicate that he had received of all the charts you used in part two. Could you provide those to the committee?

Mr. SPINNEY. I presume so.

Mr. CHU. Yes, sir. We will make sure those are provided to you.

Mr. SPINNEY. The only reason we did not is because of the short notice.

Senator BINGAMAN. Right. I wanted to ask Dr. Chu about from what I gathered just looking at these charts there was a fairly consistent pattern of changing estimated costs or prediction of estimated cost from program to program as the new budgets would come out.

One of the examples used in the first part of the briefing with regard to the F-14, I think, showed a decrease of 14 percent one year on the F-14; an increase of 46 percent the next year; a decrease of 21 percent the next year; a decrease of 8 percent the next year; an increase of 14 percent the next year, if I understood the testimony properly.

How is that explainable? I do not understand why there would be such a variation, sometimes up, sometimes down, on that particular program from year to year.

Mr. CHU. I think, sir, it is important to understand that those charts span 8 or 9 years of history. Many of the data points are from the late 1970's, a period of relatively austere defense funding.

One of the phenomena in that period was an attempt to keep programs alive. Some systems were produced at very low rates. When you change the number of items bought from year to year at low rates of production, unit costs can change quite sharply over a short period of time.

A second element—and again this relates to a problem we are trying to bring under control—is that modification programs for a particular aircraft may have been planned but not budgeted for until very close to the point of execution. That will cause the unit price to go up quite suddenly.

Again, we are trying to get a hold of that. We are trying to insure that the forward data we supply you in the congressional data sheets reflect accurately our best estimate of the costs of future modifications, so that you will not be unhappily surprised when those modifications have to be funded.

Senator BINGAMAN. Just one more question. Mr. Spinney, do you see a way in which the conclusions in the analysis that you have done here would be helpful to the Congress in anticipating the projected cost of particular programs, some of the specific programs which the Congress obviously has to make decisions on, such as the B-1 and the MX missile?

It would obviously be very valuable to us to have an accurate idea of what the cost of those programs is likely to be if they are funded.

Do you see a way in which your analysis can be used to give us a more accurate figure?

Mr. SPINNEY. The analysis as it was specifically done, probably not. I think the key thing is, when you look at it from your perspective—and of course I am projecting myself into something I have never experienced—is that you are asked to make decisions each year that have consequences extending over long periods of time. You vote for the B-1 or you vote against the B-1; you vote for a carrier or against a carrier.

Those expenditures are going to occur over a long period of time and I think you need a better perspective on the future consequences of the decisions that you are making. Possibly—and I am just giving a personal opinion—possibly some sort of capability to do this on you own or maybe through the Congressional Budget Office might help you—I do not know—to analyze the five-year plans.

There are all sorts of things that can be done with that data.

Senator BINGAMAN. But you think it would be possible through the use of the same kinds of techniques and further extrapolation from that data to make some kind of a better calculation as to what the B-1 bomber is going to cost?

Mr. SPINNEY. I think we can always improve, and there are lots of ways that we can use this type of data and other data to do it.

I think your question really is relating to your perception when you are making the vote; is it not? You want to have better information to enable you to make a decision.

Senator BINGAMAN. Right. In making decisions between different weapon systems it would be good to know which one is going to double in price and which one is just going to increase 50 percent.

Mr. SPINNEY. We would like to know that in the Pentagon, too.

You need some way of getting an extended view. How you go about doing that is an institutional problem that I am really not qualified to talk about.

Senator BINGAMAN. Dr. Chu, did you have any thoughts on this?

Mr. CHU. Well, again, I do not mean to sound like a broken record. We have in fact tried to put into place a series of steps, particularly via the independent cost estimate route, to try to be sure that we do provide you estimates of future costs that are accurate and that reflect all of the items that will be required.

I think that the initiation and expansion of this program and its repetition each year will significantly improve our performance in the future. As I said, each year we will take a set of systems that are up for review and go through them on an independent basis—separate from the program manager's estimate, separate from the estimate of the guy who is trying to sell you the system—and try to insure that we have in fact budgeted properly for all of these uncertainties.

Senator BINGAMAN. Thank you, Mr. Chairman.

Senator TOWER. Senator Gorton?

Senator GORTON. Mr. Chairman, I thank you.

Mr. Spinney said in answer to a question just a little while ago that what he attempted to do was to give us a picture of history, what had happened in connection with estimates of costs of weapon systems as against what they turned out to be and that history was very important for us in determining what might well happen in the future.

Mr. Chu has said that the history is in a sense irrelevant because there have been significant reforms, and we will hope that that was correct.

I have not heard any criticism that I can find valid of the methodology which Mr. Spinney has used to determine that history. I think it has been very, very important and very significant.

I do wish to say, Mr. Chairman, that I suspect even as we look at that history, that cost overruns for weapon systems in the Department of Defense may well have been relatively mild when we compare them with overruns in the estimated costs of large numbers of social programs such as medicare and medicaid, agricultural programs and the like, when we take those programs back to the time at which they were originally estimated and accepted by the Congress of the United States.

Now, with respect to those programs we do not say that because the Department of Agriculture has underestimated the cost of an agricultural program, we will cut off the farmers. We determine whether or not the programs are appropriate. We fund them accordingly, and we attempt to reform them so that those cost overruns are not as great in the future.

That, it seems to me, should be the lesson that we get here today. If we try to punish the Defense Department for being wrong, we may very well punish ourselves and have an inadequate national defense.

Nonetheless, I think what has been said here is very important and I do have a couple of questions of Mr. Spinney. To ask him as to whether or not he thinks that any fundamental or systematic changes have taken place in the last couple of years.

Now, you went through those charts, particularly in part 2, Mr. Spinney, quite rapidly. I may have noticed something that was not there but I would like to ask you about it.

It seems to me in a number of respects that the difference between the 1983 estimated line for the 5 years predicted in that budget, and the 1984 year estimated line—perhaps 1982—were rather significant, were very significant, that there were bigger differences between 1982 and 1983 than perhaps there were between 1979 and 1980.

Is there any indication in those charts, is there any belief on your part, that in fact the estimates which are contained in the 1984 budget before us now are more realistic than, say, were the estimates given to the Congress in 1979 with respect to the budget submission then?

Mr. Spinney. That is a good point that you brought out. I think in a general sense there was probably a large increase between 1982 and 1983. Some of that does indeed reflect some of the things that Dr. Chu was referring to. Naturally, if we correct things, that is going to show up and on paper and it may look bad. But in fact it represents an action taken to correct the situation. There is some of that in there.

However, my concern is that if we looked at the differences between 1983 and 1984, the first estimate of 1984, we saw that the instability was falling into the same pattern. Now, it is more muted in general, I would say, than it has been in the past. But we are not talking about a 12-month difference, we are talking about a 5-month difference; it was the first draft.

We are going to need a couple of years to see how serious that instability really is. There may not be any difference in the final budget from the first estimate submissions. In fact, my data indicates that the second estimate was not a whole lot different, the estimate of the September-October timeframe. I have the charts, I just have not made them into slides; that is why I did not show them.

But it is basically pretty much the same.

Senator **Gorton**. So it is likely that there have been some changes or that some of the changes which Dr. Chu has referred to are in place and may give us somewhat more realistic estimates for the future than we have gotten in the past. But you are very cautious to say that we still do not have a long way to go.

Mr. **Spinney**. I think there are some things that happened that help, no question about it. I do not think the structural problem has been changed a whole lot. That is my personal view.

Senator **Gorton**. Dr. Chu, Senator Domenici asked you a question about the inflation rate which is built into the DOD estimates. I think both in answer to him and earlier you have indicated that you no longer are using the same inflation factor for DOD programs as is represented for the enonomy as a whole in CPI. Is that not correct?

Mr. **Chu**. As represented by the OMB price deflator. Yes, sir, that is correct, for four major categories.

Senator **Gorton**. And by and large you have a higher number.

Mr. **Chu**. Yes, sir.

Senator **Gorton**. Are you subject to the criticism that any of the difference in those two numbers is not really inflation but some of these other biases, these other reasons for cost increases which have been the subject matter of this hearing? Are we disguising some of them by calling them "inflation?"

Mr. **Chu**. Well, we hope not. The source of the data is independent of the Department of Defense, let us say the source of the underlying historical theories on which the future relationship is predicated. Those data are the BEA defense price indexes, which are assembled very carefully, based on a large sample of defense goods.

They attempt to correct for some of the problems that concern you, sir.

Senator **Gorton**. Thank you very much. Thank you, Mr. Chairman.

Chairman **Tower**. Senator Levin?

Senator **Levin**. Thank you, Mr. Chairman.

It seems to me the basic question is whether or not we are just looking at history, or whether or not we have a current continuing problem.

As I understand what you are saying, Mr. Spinney, is that your analysis shows you that the 1984 budget is history repeating itself.

Mr. **Spinney**. Well, I think a better way to say it is, my view is the structural problem still exists. History is never going to repeat itself exactly. Some attempts have been made to improve the costing. I do not think we have gotten at the structural problem to the extent it has to be done.

Senator LEVIN. Is it fair to say then, since history does not repeat itself precisely, that in general your preliminary analysis of the 1984 budget shows that history is repeating itself?

Mr. SPINNEY. The most I can say is, the pattern appears the same—although it is of smaller magnitude so far.

Senator LEVIN. It is a small what?

Mr. SPINNEY. Well, in some cases it is not, I should not say that. The pattern appears the same to me.

Senator LEVIN. The 1984 pattern?

Mr. SPINNEY. Yes, sir.

Senator LEVIN. Is that a year-and-a-half after the Carlucci initiatives?

Mr. SPINNEY. I do not know. When were the Carlucci initiatives?

Senator LEVIN. November 1981, I think.

Mr. SPINNEY. Yes, sir. I do not know whether that is the correct date, but it is after them.

Senator LEVIN. Now, the Congressional Budget Office [CBO] has estimated—and I am quoting here,

> CBO's preliminary analysis of 60 major systems in the Administration's budget indicates that they have increased by a net $2.6 billion in fiscal year 1984. These increases reflect higher estimates of cost per unit in real terms after adjustments for inflation.

Are you able to say that that figure sounds about right to you in terms of your saying that the general pattern is repeating itself? Does that sound like about the right number for increased costs in the 1984 budget?

Mr. SPINNEY. I have looked at data from a different perspective. The last slide I showed is about the extent of the 60 programs, some big, some small. Some changes were big changes, some changes were small changes.

Senator LEVIN. Are you able to say—in terms of your statement that the pattern is basically repeating itself in 1984, years now after the Carlucci management initiatives? The CBO preliminary analysis that 60 major systems have increased by a net of $2.6 billion in the 1984 budget over what the 1983 budget estimated they would cost is approximately right. Are you able to say that?

Mr. SPINNEY. I have not made the comparison, so I just cannot say it, Senator.

Mr. CHU. Could I note, Senator, a comment on that? If I may read from Mrs. Rivlin's testimony. It said, "Changes in unit prices of the 60 systems added $2.6 billion in budget authority, or about 1 percent, to the 1984 budget."

I think if you turn to the "spaghetti" chart in the handout you received and look at the tactical fighter programs you will see that the difference between the 1983-87 line and the 1984-88 line is quite modest compared with historical standards. So, I think there is evidence in the materials you have at hand and have cited from CBO of our progress in this regard.

Senator LEVIN. Do you agree with the $2.6 billion figure, Mr. Chu?

Mr. CHU. I am not trying to agree or disagree with the $2.6 billion figure. I am trying to put it in context. The context was, I think, a relatively positive review by the Congressional Budget Office of the efforts being made and the progress we have achieved to date.

Senator LEVIN. If I understand what you are saying, then, you do not accept the $2.6 billion figure.

Mr. CHU. No, sir, I did not say that.

Senator LEVIN. You do not necessarily accept the $2.6 billion figure.

Mr. CHU. I do not want either to confirm or to try to refute a particular figure. I think the important thing that was said in that regard——

Senator LEVIN. I understand.

Mr. CHU [continuing]. Was that the increase was about 1 percent.

Senator LEVIN. I understand.

Mr. CHU. Which is a quite small relative change.

Senator LEVIN. The $2.6 billion is a lot of money in 1 year.

Mr. CHU. In absolute terms, yes, sir.

Senator LEVIN. In 1 year. CBO was saying that in the 1983 budget we estimated 60 weapon systems as costing *x*. In the 1984 budget, 1 year later, those 60 weapon systems are already costing us $2.6 billion more than we estimated just a year ago. That is what they are saying.

That is a lot of money to me.

Mr. CHU. But it is about 1 percent of the total that they looked at, according to Mrs. Rivlin's testimony from which I am now reading.

Senator LEVIN. Are you saying, is your testimony that we should look at these increases as evidence of the fact that you are correcting the problem? That seems to be your testimony.

Mr. CHU. No, sir. What I am advising is caution. As we look at individual systems—particularly those for which we have attempted to catch up for past underfunding of support equipment, initial spares, and other items—and compare the current procurement line with what people 2, 3, or 4 years ago thought that line would look like, I think you want to be careful in interpreting what is going on. What I am trying to say——

Senator LEVIN. I understand. But these increases in cost could reflect your corrective action.

Mr. CHU. Yes, sir, that is correct.

Senator LEVIN. And by that logic, the greater the increase in cost, the greater your corrective actions have been.

Mr. CHU. No; I do not necessarily subscribe to that statement. I think in fact that, as far as these kinds of issues are concerned, you want to look at these results on a system-by-system basis.

Senator LEVIN. My time is up. Thank you.

Chairman TOWER. Senator Kassebaum?

Senator KASSEBAUM. I am the last one. It has not been half bad. [Laughter.]

I really do appreciate the Armed Services Committee and the Budget Committee getting together on this because I think it is an important hearing. I frankly think this kind of discussion can help us all better understand the complexities of the system and the budget problems attendant to that.

Particularly I would say, Mr. Chairman, that when the end conclusion seems to be more money is needed, that that must indeed be something that you would feel you have been arguing for, for some time.

I would agree with you, Dr. Chu, that certainly Congress is part of the problem. It is frustrating to us. As Senator Goldwater pointed out, we get very parochial in arguing for programs in our States and districts, as well as changing our own minds about what is needed or not needed.

I would like to follow on just a bit with Senator Levin's comments because I think earlier I understood you to say that you believe the initiatives that were started by former Deputy Secretary Carlucci have solved the problem.

Now, I think they were important initiatives. But do you indeed think they have solved the problem?

Mr. CHU. I do not think I used the words "have solved the problem." We recognize this is a long-established and deeply entrenched phenomenon and that it is not going to be rooted out overnight.

What I have tried to stress is that these initiatives have put us on the road to bringing this problem under control, and that there is some evidence of improvement. Because it takes several years to be able to see the results of the kinds of documents we forward to you, I would urge patience in trying to judge us in terms of the effects of these initiatives.

What I would stress—I think in contrast to some of the impressions offered—is that significant efforts have been made to put the Carlucci initiatives into place and get them going.

Senator KASSEBAUM. Do you see in your analysis, Mr. Spinney, that this has had an effect? I do not want to put you on the spot. [Laughter.]

You have been on the spot all day.

Mr. SPINNEY. I am on the spot.

My view is that there are deep-seated, structural problems that have to be addressed. A lot of the Carlucci initiatives certainly were laudable in their intent. I just do not see it happening. That is my personal view.

Senator KASSEBAUM. But we have seen—and you know, I do not know how——

Mr. SPINNEY. Excuse me, that is based on, again, the comparison of the last two budgets, the 1984 versus the 1983.

Senator KASSEBAUM. I do not know how to gage whether the initiatives that have been put in place could have an effect on the 1984 budget, given the fact they just were in place in 1981, spring or fall of 1981.

Evidently there is some question, Dr. Chu, on your part on the increase in the CBO analysis. But for instance, one MX missile in 1983 cost $57 million, in 1984 $103 million at a percentage increase of 79 percent.

Now, obviously this program has gone through its travials and still has them ahead. But is there at some point a program, a system that we can analyze that would show where the initiatives with better procurement procedures and so forth, better testing, are taken and are having an impact?

Mr. CHU. Yes, ma'am.

Senator KASSEBAUM. You mentioned a couple.

Mr. CHU. Again, I would cite the F-16 and the UH-60 Blackhawk helicopter as twc particularly good examples. And let me offer some others for the record. Two other examples are the multiple launch rocket system [MLRS], and the KC-10 tanker-cargo aircraft.

But coming back to the MX program, I think, in fact, that illustrates the need for the partnership that you identified. An important element in the increase, as you cited, is the fact—as many members of this committee are painfully aware—that we did not receive any production money for the MX missile in fiscal 1983, although we requested it.

So, the program has been moved back a year and has had to be substantially revamped. That is an important factor in looking at the kinds of changes that you cited.

Senator KASSEBAUM. How do you interpret that, Mr. Spinney, in your analysis? Is this obviously one of the problems that you see structurally, being unable to determine what system we are going to have and use, and go with it?

Mr. SPINNEY. That is naturally going to make it very difficult to forecast the costs.

Senator KASSEBAUM. But I think this points to a very real problem. I would say it is disconcerting to me to have a number of people raise the same questions that you have. George Kune in the Heritage Foundation report and others have raised this same problem and I think it is an important one that we have to be able to look at and answer. I think the public wants answers.

It is troubling to me that it is hard to really get this discussion out where I think we can better understand it. But you are saying that there are structural problems, really, for those programs and that you believe they are important, we need more money.

Let me ask you because it comes down to the heart of the matter. We are going to have a hard time and probably, I would guess, will not even be able to get the President's request for the 1984 defense budget. What do you see happening?

Now, I know you made your recommendation.

Mr. SPINNEY. That is going to make repricing a lot more difficult. I think the key thing that we have to keep in mind is, we want to separate the two issues.

The first issue is, how much money does the United States want to spend on defense. Independent of that issue is the second issue of how we spend our money, how we plan to spend it—what we do to readiness, modernization; how effectively we plan for both. That is the issue that I am really concerned with here in this analysis.

If the budget has to be cut, I still think we should reprice the procurement budget. That is going to make those cuts look a lot more difficult and in a certain sense, if hypothetically people accepted my argument, it is going to make your life a lot more difficult over here because you are going to have to cut a lot more than you initially thought you had to cut in terms of force structure.

However, the key point I want to stress and the point that I am concerned about—and I have been concerned about this for many years now—is how we are doing our planning; how we are doing our decision. That is an issue in my mind that is separate from how much is enough.

Senator **Kassebaum**. I think personally it is a very important point.

My time is up. I would only like to end with the fact that if the public is going to be willing to support the sound defense system we need, I think they need to have a confidence that they have been given the best facts and figures available. That is why I think this type of hearing does serve a very useful function.

Thank you, Mr. Chairman.

Chairman **Tower**. Senator Kasten?

Senator **Kasten**. Thank you, Mr. Chairman.

Mr. Spinney, they listed a number of changes that the Defense Department now has put into place. I just want to know if you think they were good ideas or bad ideas.

For example, in the testimony of Dr. Chu we now have a system of special deflators for major commodities procured by DOD to better reflect actual inflation. Is that a good reform or a bad reform?

Mr. **Spinney**. I really have not looked at that one in enough detail to comment on it.

Senator **Kasten**. All right. The second one, they directed the service Secretaries for independent cost estimates in preparing their programs and budgets. Is that a good reform or a bad reform?

Mr. **Spinney**. I think that has the potential of being a very good reform. The key thing is doing independent cost estimates across the board, not on selected systems, and then making them stick in the budgeting process. That is the crucial issue.

Senator **Kasten**. That relates to the next point that I was going to make, talking about independent cost estimates for those systems that require close attention. Is that a good reform or a bad reform?

Mr. **Spinney**. I think we ought to have them more broadly based.

Senator **Kasten**. So, this is a good reform but you want it to be expanded?

Mr. **Spinney**. I think we ought to have more independent cost estimates, yes, sir.

Senator **Kasten**. Now, the last one.

Mr. **Spinney**. These are personal views.

Senator **Kasten**. Yes. Well, I think a lot of what you have been talkng about today have been personal views based on your personal analysis.

Mr. **Spinney**. Right.

Senator **Kasten**. You have encouraged multiyear procurement of major mature systems. Is that a good reform or a bad reform?

Mr. **Spinney**. I do not know enough about that one. I cannot comment.

Senator **Kasten**. Well, for example, we made a decision on the carriers this year. The navy came to us with a program that went out. We essentially, in the Congress, bought off on it. According to the Secretary of the Navy and others, we saved money by making some specific decisions, specific contracts, and we went out and priced it honestly and fairly.

That seemed to me to be a good reform. Would you agree with that, that the way we handled the carriers this year was a good reform and the kind of way that we should work with procurement in the future?

I am not asking whether we need another carrier, that is another issue.

Mr. SPINNEY. My problem is not so much with multiyear procurement per se. I think multiyear procurement has some problems in the context in which we are implementing it. Multiyear procurement is good, particularly if we can establish the commitment within our system as a whole—and I am including Congress here to come up with the money over the long term.

There are undoubtely going to be savings there simply because there is going to be less fluctuation on the part of the contractor and he can plan better.

However, if in fact the procurement budget is underestimated—as I think it is according to my analysis here—if in fact we are starting to institute multiyear procurement where we are making long-term commitments to Congress and then we find out that we are going to have to—and even if these multiyear procurement programs do not experience cost growth, if we have cost growth in other programs that are competing for funds with the multiyear procurement programs and we get into a general budget squeeze, there is going to be enormous pressure to change some of those multiyear procurement programs.

If we start changing them, we are going to be paying contract penalties, as I understand the multiyear procurement concept.

Senator KASTEN. You are not quarreling with the multiyear procurement concept. You are saying we might be locking ourselves in because of problems that we could be recreating in other areas.

Mr. SPINNEY. Basically what I am saying is, there are economies there, there is no question about that in my mind. But we could be creating rigidities within the overall array of decisions that we may have to make in the next couple of years that could actually cause us problems.

Senator KASTEN. But you do not disagree with the fact or the assumption that some of us made, and that is that there are economies that can be realized through multiyear procurement of major systems.

Mr. SPINNEY. No, sir.

Senator KASTEN. I understand what you are saying, we may be getting locked in and we might not have enough flexibility.

Mr. SPINNEY. That is right. The key thing is how other problems are going to affect it. And of course, we may have cost growth in multiyear programs, too. That remains to be seen.

Senator KASTEN. Right. But in general, then, we are making some progress in some of the efforts that we are making. I understand you are not happy with all of it. But some of the efforts that they have made are going in the right direction.

Mr. SPINNEY. Yes, sir.

Senator KASTEN. Thank you, Mr. Chairman.

Chairman TOWER. Thank you, Senator.

Senator Grassley, do you have additional questions?

Senator **Grassley**. Yes. Before I ask my last round of questions I want to thank you, Mr. Chairman, for holding this hearing.

Chairman **Tower**. You are more than welcome.

Senator **Grassley**. Mr. Spinney, have you elaborated beyond what you presented to us on the general subject of the underfunding problem in writing? If you do, I would like to have it submitted for the record. Do you have anything else you can contribute to this discussion?

Mr. **Spinney**. I have prepared some personal notes. I prepared a personal paper, yes, sir.

Senator **Grassley**. I would like to have that submitted for the record.

Mr. **Spinney**. It has not been reviewed.

Senator **Grassley**. What do you mean? What does that have to do with anything?

Mr. **Spinney**. Nothing, I am just telling you that. I do not know whether it has anything to do with it or not, sir.

Senator **Grassley**. Oh, OK. But I mean, you are willing to submit it and I request that you submit it.

Mr. **Spinney**. Yes, sir.

(See enclosure 1, p. 795.)

Senator **Grassley**. Mr. Spinney, since you have said that the consequences of the underfunding problem are less defense, less readiness and higher costs, what effect would repricing the 5-year defense plan have on reversing these consequences?

Mr. **Spinney**. I think we would have a much clearer picture of the decisions that face this country. We would understand perhaps the necessity to increase the resources devoted to defense. Or, if for some reason we do not want to increase those resources, we would have a better understanding of the hard decisions that are going to have to be made and in effect will be made.

But we want to be able to make them consciously. Remember, we saw those force structure declines over the 30 years. Those hard decisions were being made. But I think we can get more control collectively over those decisions. I think the Congress can, and I think the Pentagon can if we price more realistically in the outyears.

Senator **Grassley**. The obvious fact is that we do not know to what extent the Carlucci initiatives will affect the future defense budget. Mr. Spinney says that the structural problems appear to still be with us.

So, as a closing statement I would like to say that I feel the next logical step for us as members of the Budget Committee is to have the programs repriced. I intend to pursue this and I hope others will join me.

The problem does not appear to be solved, and that still concerns me.

I thank you, Mr. Spinney and Mr. Chu for your contribution to what I hope becomes a real public debate. I hope the end result of this is to re-establish the credibility of the defense budget which I think was very high when this administration took over and which I think now has—at least in the public's mind—deteriorated. And that deterioration, that lack of credibility, I think is weakening our defense.

My goal in this process—if it is of any value—is to contribute to our national defense and to strengthen it—not just by throwing more dollars at it but by getting more "bang for our bucks."

Thank you, Mr. Chairman.

Chairman **Tower**. Let me just raise a question here. Are you suggesting, Senator Grassley, that the Budget Committee should get in the programmatic decisions of the Department of Defense?

Senator **Grassley**. No. But I do feel that in the outyears we should be putting figures into the defense budget that are more realistic.

Chairman **Tower**. Senator Kassebaum, do you have any additional questions?

Senator **Kassebaum**. No, I do not, Mr. Chairman.

Chairman **Tower**. Senator Kasten, do you have any additional questions?

Senator **Kasten**. No, Mr. Chairman.

Chairman **Tower**. I would just like to make a closing comment.

First, I would have to disagree with Senator Grassley that this administration has taken actions that are calculated to reduce confidence in the Defense Department. I think that it has been rather clearly demonstrated that this administration is trying to take initiatives to reduce cost overruns and to bring more efficiency into the procurement process.

I do not think that the sins of the past should be visited on this administration.

Senator **Grassley**. Mr. Chairman, my statement was to the fact that, as far as public opinion polls are concerned, confidence in the Defense Department——

Chairman **Tower**. There is no question about the public opinion. But I am just trying to say that I do not think we should visit the sins of the past on this administration because a lot of our problems had their origins some time ago.

Senator **Grassley**. I accept what you say. But I do not think it detracts from what I have said.

Chairman **Tower**. Let me note that it was my intention some time ago to invite members of the Budget Committee to various hearings of the Armed Services Committee.

This morning we heard the Army with its programmatic presentation, the Secretary of the Army, the Chief of Staff, and two field commanders. We bring the field commanders in so that we can get a clearer picture.

There is a standing invitation to all members of the Budget Committee to attend these posture hearings. Unfortunately, no members of the Budget Committee were able to make it this morning.

There was a very revealing figure there, and that is looking at the Army SAR's. The cost growth of the Army SAR's in 1979–80 was $19 billion; in 1980–81 it was down to $8 billion, and in 1981–82 it was down to $68 million.

I think that is a solid indication that progress is being made by this administration. I think that if we are going to question programmatic decisions and costing, that that is the appropriate place to do it. We have historically done that and I think that our record on, for example, the A–64 helicopter is pretty clear. I think some of the things the Armed Services Committee, and indeed the Congress, has done has given the Defense Department some tools to use to discipline the contractors from time to time.

I, in conclusion, would like to thank you, gentlemen, and say that I really am somewhat at a loss to understand why the Defense Department was reluctant to have Mr. Spinney testify before Congress.

I can understand that PA&E is an in-house organization that is charged with reporting directly to the Secretary. I also understand why the Department would prefer to have the head of PA&E speak for that office rather than a subordinate who has narrower responsibilities and perhaps lacks the full understanding of the overall objectives and policies of the Department.

On the other hand, it seems to me that Mr. Spinney's testimony illustrates how costly and inefficient further reductions would be. I would think that those who advocate present levels of defense spending, at least, would be pleased with the general theme of Mr. Spinney's testimony.

And taken directly from his testimony, let me repeat those: That we need more money for defense. That we need a stable production environment—or that it is desirable to have a stable production environment. That increased production rates can be expected to drive cost down, and that program stretchouts cause costs to go up.

I would like to thank Dr. Chu and Mr. Spinney both for spending their afternoon with us. I am sure when they depart from this chamber—if they are not already members—they would join the "Thank God, it is Friday" club. [Laughter.]

[Questions submitted for the hearing record follow:]

QUESTIONS SUBMITTED BY SENATOR WILLIAM S. COHEN

Senator COHEN. How can the CAIG be used more effectively to induce program managers to more accurately estimate their costs?

ANSWER. The DoD weapon system acquisition process requires that independent cost estimates, in addition to program managers' cost estimates, be prepared for major systems at prescribed acquisition milestones. The OSD/CAIG performs the independent cost estimating function for the Secretary of Defense. Counterpart organizations in the Services perform the same tasks not only for major systems that will later undergo review by OSD, but also for other systems for which approval authority resides in the Service. This comprehensive independent cost estimating process, especially as expanded in the past two years, is an important influence on program managers, encouraging them to estimate their program costs as accurately as possible. A key to controlling this problem is the management initiatives instituted by this Administration. Several changes have been put in place to improve the Department's cost estimates. One of these steps directs that the Service Secretaries consider independent cost estimates in preparing their programs and budgets. No longer will budgets be built—as they were in the past—almost exclusively on estimates provided by program managers. Strong management support for independent cost estimates by the Department's senior leaders has also been a strong influence encouraging more accurate cost estimates by program managers.

Senator COHEN. Are the CAIG estimates, to your knowledge, being disregarded or given insufficient weight?

ANSWER. The independent cost estimates both by the Service estimating organizations and by the OSD/CAIG, are major factors that are considered in the DoD decision-making process. At the OSD level, the Chairman of the CAIG is one of two principal advisors to the Defense Systems Acquisition Review Council (DSARC). CAIG reports are provided in advance of DSARC reviews to all DSARC members, and the CAIG Chairman regularly presents a cost briefing at the DSARC meeting. This arrangement assures that the CAIG cost estimates are thoroughly considered by the DSARC in determining its recommendations to the Secretary of Defense on all weapon system acquisitions. In addition, we have recently adopted the procedure of conducting independent cost reviews of all sensitive programs each year as part of our planning, programming, and budgeting process. This extends the formal consideration of independent cost estimates to the Department's principal, comprehensive management review process, the PPBS. During the past two years the CAIG has received greater support from top management than at any previous time, and CAIG estimates have been the basis for changes made to a number of programs.

Senator COHEN. Would you support a proposal that CAIG estimates be submitted to Congress when DoD presents its budget?

ANSWER. I could not support such a proposal. The CAIG analyses are an integral part of the Department's internal review processes. I believe it is imperative for the CAIG work to remain internal or its effectiveness in cost estimating will be damaged significantly, and its usefulness in providing independent advice to the Secretary and Deputy Secretary will be lost.

The CAIG analyses represent independently derived staff opinions provided to senior management to aid the decision-making process. Providing these CAIG estimates to the Congress or other agencies external to the Department of Defense could seriously affect the independence of the cost estimating process. Distribution of these estimates to external agencies could cause analysts to become more cautious and less candid in their appraisals and would deny the Secretary of Defense important information from the CAIG which is part of his personal advisory staff.

Senator COHEN. Does PA&E effectively counteract what many defense experts consider the Services' proclivity to understate the cost and overstate the performance of their weapon systems?

ANSWER. One of PA&E's major roles is to provide objective analyses to the Secretary of Defense on force structures, weapon systems and related costs and resource requirements. In performing this role, PA&E analysts attempt to provide their best possible assessments of weapon system costs, performance and other characteristics, unconstrained by any personal biases or management direction that could influence the results of their studies.

Senator COHEN. Do you feel that this external discipline (the Nunn-McCurdy requirements) will prevent contractors from "getting well" at the expense of the government?

ANSWER. This report provides information that the Congress has determined it requires to fulfill its proper legislative responsibilities. The DoD weapon system acquisition process, operating under the provisions of public law, has been developed to minimize the possibility of results such as those referred to in the question. I believe the effective operation of that process rather any reporting system to Congress offers the best means of protecting the interests of the Government in acquiring new weapons.

Senator COHEN. What are your recommendations for improving the SAR to make it a more effective cost control tool?

ANSWER. The content of the SAR was established initially by the Senate Armed Services Committee in consultation with the DoD and the Senate Preparedness Investigating Subcommittee. DoD, along with representatives of the House and Senate Oversight Staff Committees and the GAO, participated in another revision of SAR content during 1974 and 1975. The Authorization Act of 1983 further modified the SARs by precisely defining the content of the March, June, and September SARs and by making a slight modification to the December SARs. Through these evolutions, DoD has attempted to make available the information that the Congress has determined it requires to monitor the acquisition of major weapon systems. But a number of improvements to the SARs could be considered, and the Department is currently working on a set of recommendations for the Congress to evaluate.

Senator COHEN. Should the SAR provide explanations for cost growth in major weapon systems, in addition to assigning cost variances to several categories? For example, under the quantity changes category, do you think it would be useful if the SAR specified the reason for the quantity change—funding limitations, redefinitions of mission needs, or development of alternative systems?

ANSWER. The newly revised March 2, 1983 DoD Instruction 7000.3, "Selected Acquisition Reports" states: "All change explanations should explicitly identify why the change occurred. For example, additional avionics equipment explains the result of increased weight of a tactical fighter."

Senator COHEN. A January 1983 Congressional Budget Office study on cost growth in weapon systems found there to be an inverse relationship between cost growth and the dollar value of the weapon systems, i.e., large systems generally experience less cost growth:

Have you found this relationship to exist?

If so, what steps can be taken to curb cost growth in smaller weapon systems?

Answer. Based on a review of thirty-one completed weapon system programs reported since the Selected Acquisition Report system was initiated, it could be concluded that large programs generally experience less cost growth than smaller programs. Close examination shows, however, that two programs in the smaller weapon system sample are outliers (production was cancelled on one of these programs) and cause a substantial increase in the overall average cost growth for that group of systems. If those two programs are removed, the average percent growth is essentially the same for both small and large dollar value weapon systems. There is no doubt that controlling cost growth on all weapon systems is a major DoD problem. Recent steps taken to curb this growth include the Carlucci initiatives, most of which are designed to install policies that will either directly or indirectly reduce weapon system cost growth. Another important step is the extension of the independent cost estimating procedure to major systems during the annual program/budget reviews.

Senator **Cohen**. What steps has DoD taken to increase the use of competition in contracting?

Answer. We recognize that the attainment of more effective competition is one of the major challenges facing us today. It is one of the major initiatives of the DoD Acquisition Improvement Program. In response to our direction, the Military Departments and Defense Agencies have:

Designated advocates for competition in all buying organizations;

Insured that each commander understands his responsibility for maximum feasible competition;

Established goals for competition in all buying organizations; and

Made competition in systems development and production a matter of special emphasis.

Again on 9 September 1982, the DoD Components were directed by the Secretary of Defense to place maximum emphasis on competitive procurement. The Competition Subgroup of the DoD Acquisition Improvement Steering Group is reviewing and assessing measures of improvement and is currently sampling the justifications for noncompetitive procurement to ascertain the reasons for such procurement. Achievements in fiscal year 1982 include:

The dollars awarded under competitive procedures increased $5 billion in fiscal year 1982 over fiscal year 1981.

Each of the Military Departments and the DLA increased their percentage of awards (dollars) made under competitive procedures.

Follow-on awards increased to 25.6 percent in fiscal year 1982 versus 23.6 percent in fiscal year 1981.

We will continue our efforts in this area.

Questions Submitted by Senator Gary Hart

Senator **Hart**. Mr. Chu, do you dispute the historical record presented by Mr. Spinney, or do you argue that the "reforms" initiated by the Administration, particularly the so-called "Carlucci Reforms," will result in better performance in the future?

Answer. As mentioned in my opening remarks to the Committee, the historical record is not at issue. No one questions that, in the past, the Department's planning figures for future costs were often optimistic.

We have examined this problem to learn what factors have led to the optimism about future costs. The "Carlucci Reforms" are a forthright effort to deal decisively with our cost problems. This is a long entrenched and difficult problem. It will take time to fix it, yet there are already some encouraging signs that these changes are beginning to take effect. These changes need the support of the Congress if they are to be fully effective and successful.

Senator **Hart**. What sources of program cost estimates does the Department of Defense have other than contractor estimates?

Answer. The Department of Defense has a comprehensive, independent cost estimating capability that extends from the field procurement organizations through the various levels of management to the Office, Secretary of Defense. Trained cost analysts regularly prepare independent cost estimates for the DSARC process, as part of final source selection, in the programing and budgeting of resources and in measuring the performance of contractors during weapon system acquisition. In preparing these independent cost estimates, the analysts use countless data sources on previous or comparable programs as well as properly validated contractor information.

Senator **Hart**. What data does the Department have on economic production rates other than contractor estimates?

Answer. The Department has extensive information on production rates experienced for completed programs and in on-going programs in addition to the program under review. Highly trained DoD production management analysts and engineers regularly analyze contractor data in terms of these other data, conduct production studies on the particular program under review, and determine the appropriateness of contractor estimates. They have specifically compiled data bases and developed cost models that project the impact of variations in production rate on unit cost.

Senator **Hart**. In what ways has this administration improved its cost estimates and economic production rate data, compared to previous administrations: what additional capabilities has it developed to go beyond contractor data in both cases?

Answer. The expanded independent cost estimating process itself is an important step in improving cost estimates. The reconciliation of program office estimates and independent cost estimates in developing the Service Program Objective Memorandum gives greater visibility to costs and any differences in the estimates prepared by different organizations. This, in itself, improves the objectivity and quality of the cost estimates.

Some of our contract research efforts have also been helpful. Among the more important of these efforts is a study of indirect costs in the defense industries. This study examined in great detail the elements of indirect cost and the way these costs are accumulated in several major aircraft companies. This gives us a much better understanding, not only of the increasing importance of these costs, but also of the role they play in determining economic production rates.

Senator **Hart**. What new steps to control contractor overhead costs have been initiated by this Administration?

Answer. Two new cost principles have been incorporated into the Defense Acquisition Regulation (DAR) that have a direct impact on contractors' indirect costs. The first makes all costs for lobbying unallowable in DoD contracts. The second makes the costs incurred in connection with defense of fraud proceedings unallowable when those proceedings result in a conviction or judgment against the contractor, or are resolved by consent or compromise.

In addition, the Air Force chartered an ad hoc task force in September 1982, whose purpose is to examine how existing contracting and pricing regulations can be modified and strengthened to help control the trend of rising wage compensation, including executive compensation and overhead costs (e.g., cost of living adjustments and fringe benefits).

Senator **Hart**. To what extent has this administration increased dual sourcing, as a means of controlling contractor "buy-ins" with unrealistically low bids? If dual sourcing has not been increased, how does the department plan to control "buying in"?

Answer. Dual sourcing is being used more frequently and it is a strong factor in reducing "buy-ins". Dual sourcing must be selectively employed on a case-by-case basis, however. Total inventory, length of procurement run, technical complexity, availability of design and manufacturing data and, of course, the existence of multiple qualified sources are factors to be considered in making a dual source decision.

The following are some examples of programs for which the Department of Defense has used the second source acquisition strategy: AIM-7M and Hellfire missile programs, rocket motor for Pershing II, TOW, Chaparral, and AIM-9M missile programs, F-16 Canopy, ACES II ejection seat, and GAU-8 gun and ammo. Second source planning is under way on the F-15/F-16 engine and AMRAAM programs, and various components for the Bradley Fighting Vehicle (track, gun and ammo), Phoenix (Target Detecting Device), IR Maverick, and MX at the first tier level.

Our main defense against buying-in, however, is a more accurate and independent cost estimate obtained through "should cost' and other technical means. In this manner we provide the contracting officer with a good approximation as a basis for negotiation.

Employing competition in the early stages of a program is also helpful. A proposal with a price well below the others is immediately suspect. Is the contractor buying-in or, as frequently is the case, does he not understand the true scope and complexity of the effort? Either case is potentially disastrous and an unrealistic bid can and should be rejected.

The buy-in problem is further combatted by the choice of contract type. Fixed-price contracts are generally preferred for production when risks are low. Cost reimbursable contracts are frequently called for during design and development when the effort contains technical risk and a high level of Government visibility and control is warranted.

The principle of realism in cost estimating is pursued from the buying level up to the OSD level. The OSD CAIG (Cost Analysis Improvement Group) provides an independent estimate of cost at major program milestones. This estimate is provided directly to the DoD Acquisition Executive who serves as the DSARC chairman.

Our "budget to most likely cost" Initiative Number 6 in the DoD Acquisition Improvement Program is also helpful in avoiding "Buy ins". Any technique that improves the realism of the cost estimating process is of great value.

Senator **HART**. The so-called Long Memorandum, an internal DoD commentary on the Carlucci reforms, referring to the buying-in problems and the need for more realistic cost estimates, reportedly states that "continued optimism on the part of sponsoring acquisition organizations is probably the greatest remaining barrier to this initiative (the intitative to improve cost estimates)." What steps has the Department of Defense taken to reduce such optimism?

ANSWER. Several changes have been put into place to improve the Department's cost estimates. Two of these changes are steps to reduce the cost optimism of acquisition sponsoring organizations:

We have directed that the Service Secretaries consider independent cost estimates in preparing their programs and budgets. No longer will budgets be built—as they were in the past—almost exclusively on estimates provided by program managers.

We have instituted special reviews by my staff of independent cost estimates for those systems that require close attention, and have made necessary budget adjustments where required. In short, we have gone beyond the practice of past Administrations, which frequently prepared but seldom used independent cost estimates. The Secretary has insisted that independent cost estimates be a central element in our program and budget reviews.

Senator **HART**. Carlucci reform number 11 reportedly discusses the problem of technological risk associated with new weapons programs and ruges more realistic estimates of the financial results of taking such risks. It notes that a possible result will be "higher initial program estimates." Yet we see from the Spinney briefing that current DoD cost estimates are low when viewed from a historical perspective. How do you explain this?

ANSWER. I do not agree with the interpretation that current DoD cost estimates are low when viewed from a historical perspective. Such a judgment simply projects past cost history into the future assuming that nothing has changed, when, in fact, significant changes have occurred.

The historical record is not at issue. Historically cost estimates have been low. But, decisive steps have been taken by this Administration to control the causes of poor cost estimating. In fact, Reform 11 exists to control one factor that has contributed to the underestimating problem—technological risk. In response to this initiative considerable emphasis is now placed on the need for adequate funds to cover technological risk during the acquisition review process and as part of the program development and budget reviews. The Spinney briefing does not consider the changes established by the Carlucci management initiatives to improve the acquisition process. Ignoring these management changes limits the utility of applying the Spinney historical findings to future situations.

Senator **HART**. How many of the Carlucci reforms directly address the problem of weapons programs cost growth.

ANSWER. Although practically all of the Carlucci reforms will contribute in some way to cost saving, the following directly address the problem of weapon program cost growth:

1. Management principles.
2. Preplanned product improvement.
3. Multiyear procurement.
4. Increase program stability in the acquisition process.
5. Encourage capital investment to enhance productivity.
6. Budget to most likely cost.
7. Economic production rates.
8. Assure appropriate contract types.
10. Reduce the administrative cost and time to procure items.
11. Incorporate the use of budgeted funds for technological risk.
12. Provide adequate front-end funding for test hardware.
15. Funding flexibility.
16. Contractor incentives to improve reliability and support.
18. Budgeting weapon systems for inflation.
19. Forecasting of business base conditions at major defense plants.
20. Improve the source selection process.
21. Develop and use standard operational and support systems.

22. Provide more appropriate design to cost goals.
29. Integration of the DSARC and PPBS process.
30. Logistics and support resources.
32. Increase competition in the acquisition process.

Senator HART. Reform number 20 reportedly commits the Defense Department to look at a contractor's past cost performance when awarding contracts. Since this Administration took office, how many defense contracts or bids for contracts have been disallowed on the basis of the contractor's past cost performance? What is the total value of the contracts affected, as a percentage of the procurement budget?

ANSWER. Initiative No. 20 commits the Department to place added emphasis on past performance, schedule realism, facilitization plans, and cost credibility. It is not just cost performance, but past performance in a much broader context. The emphasis on Initiative No. 20 has been incorporated into Service directives. At this time, however, the source selections carried out under these new instructions represent a small proportion of our total development and procurement budgets. Meaningful information relating to the results following the implementation of Initiative No. 20 must await the completion of a larger number of defense source selection actions.

Senator HART. The Long memorandum also reportedly states, in reference to the need for controlling cost growth, that, "A . . . barrier is each Service's opinion that in-being Service systems fulfill the requirement. They do not." What changes has the Department made in those service systems?

ANSWER. Both the Cost Performance Report and the Cost/Schedule Status Report (C/SSR) provide current status information in terms of hardware and functional elements, a record of contract changes, manloading projections, and a summary analysis of contract problems. The reported data are used by the program office to establish and evaluate cost and schedule trends to provide an assessment of the contractor's estimate of total cost at the completion of his program. In addition, program offices receive from the contractor, the Contract Funds Status Report which is a budget execution document. Summary information from these reports is provided to the OSD Comptroller through the supplementary Contract Cost Report (SCCR). A forthcoming revision to the SCCR will permit establishing a clear link between contract problems and total program costs. Finally, a new system based on the SCCR is being developed that will utilize the earned value concepts inherent in the C/SCSC at the total program level. This new reporting system should enhance significantly the visibility of the status of major programs.

Chairman TOWER. So, thank you both, gentlemen, for being here today. The hearing stands adjourned.

[Whereupon, at 6:11 p.m., the committee adjourned, to reconvene subject to the call of the Chair.]

ENCLOSURE 1

THE PLANS/REALITY MISMATCH

and

Why We Need Realistic Budgeting

Franklin C. Spinney

December 1982

This paper represents the opinions of the author. It does not reflect the views of the Department of Defense and no effort has been made to correct any errors or inaccuracies that it might contain.

Preface

This paper presents the independent views of the author. It has not been reviewed by the Department of Defense and therefore should not be construed as reflecting an official position of the Department.

This paper is authorized by--and written in the spirit of--the March 27, 1981 DepSecDef policy memorandum: "Management of the DoD Planning Programming and Budgeting System"--specifically the sections dealing with accountability, economics and efficiencies, and improved programming.

I. The Problem

Unexpected weapons cost growth has been a source of unrelenting pressure to re-visit procurement decisions and stretch out modernization programs repeatedly. Although this problem has frequently been a matter of high level attention and management reform, the large number of procurement stretch-outs contained in the FY 84-88 POMs--compared to the FY 83-87 FYDP published just four months earlier--suggests that unexpected cost growth continues to destabilize our modernization plans. If this continues, we will face the following options in the near future: (1) increase the growth rate of the total defense budget above the current projection of 7% annual real growth and pump this increase into the procurement budget; (2) cut force size and/or readiness further to reduce the operating budget and use the "savings" to increase the procurement budget; (3) slow modernization rates further--i.e., stretch-out procurement programs--to reduce the total procurement budget and continue to accept a compounding of the cost-growth budget- squeeze problem; and (4) reduce total procurement budget requirements by cancelling major programs outright. This paper examines the procurement underfunding question by determining if, in fact, a serious underfunding problem exists, and what, if any, its ramifications are. It concludes with two recommendations.

II. Point of Departure

Procurement planning does not take place in isolation; it is part of a web of decisions shaping the readiness, structure, and modernization of our forces. Before proceeding with a narrow examination of procurement underfunding, we should understand how procurement decisions relate to the general pattern of decisions. This web of decision-making is the subject of Defense Facts of Life-- a report written by this author in December 1980.

Defense Facts of Life relates readiness, force structure, and modernization decisions from the perspective of historical decisions--i.e., what actually happened; and from the perspective of the current decisions shaping our five-year plans for the future--i.e., what we want to happen. Included in the discussion is an analysis of technology's influence on the pattern of decisions. This subsidiary analysis centers on the question of whether or not our plans account for the long-term consequences of current technology decisions to increase the complexity--and cost--of our weapons. [1]

From the perspective of what actually happened, there exists a historic mismatch between short-term decisions (i.e. desires) and long-term behavior (i.e. reality). In the short-term, we tried to hold down operating (i.e., personnel, O&M, and readiness related procurement) budgets while pumping growth into procurement (i.e., modernization) budgets. At the same time, we modernized with more complex equipment that is more expensive to buy, operate, and support. Because there is—at least in the abstract—some minimal level of operations that must be maintained, the real cost of this low level increased on a per unit basis; and this cost is, in effect, an unavoidable or fixed cost. This fundamental operating cost growth problem has been compounded—and obscured—by external trends such as inflation, energy, and personnel cost growth. Over the long-term, the only way the operating budget could be held down was to maintain low readiness while shrinking the size of the force. However, the massive force reductions of the last 25 years were not able to offset the growth in the cost of low readiness; and consequently, it was also necessary, over the long-term, to shift the allocation of funds away from modernization and into the operating accounts. The fact that the overall defense budget has fluctuated up and down during this period tended to mask these internal dynamics. The long-term results, however, have been clear: shrinking forces, persistent low peacetime readiness, and declining rates of modernization.

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[1] Unfortunately, this discussion got distorted into a question of the "goodness of high technology"--or in the defense lexicon, "quality versus quantity." This distortion, whether accidental or deliberate, led to an unproductive emotional debate with the major conclusions of the report being neither rebutted nor resolved. The discussion in this section summarizes the relevant conclusions of the report.

Turning to the perspective of what we want to happen, the analysis of the decisions shaping our five-year plans revealed a pattern that is strikingly similar to our ill-fated short-term historical behavior. Given a specific assumption of future growth in the overall defense budget, our plans allocate:

1. Higher growth assumptions to the procurement budget.
2. Lower growth assumptions to the operating budget—despite the fact that equipment coming into the inventory continues to be more expensive to operate and support than the equipment being replaced. There is also a strong tendency to underestimate future operating and support costs.

In addition, an examination of program changes over the years revealed that:

3. When overall budget guidance is increased, there is a strong tendency to program "new starts" as opposed to more robustly funding existing programs.
4. The DoD decision-process—i.e., the DSARC/PPBS process—rarely, if ever, cancels major procurement programs. The norm is to delay or stretch procurement programs.
5. Plans tend to underestimate the cost of individual procurement programs.

Taken together, these observations suggest our problems—i.e., low readiness, shrinking forces, and declining rates of modernization—result more from disharmonies in the pattern of decision-making than from the size of the defense budget. Put another way: more money spent the same way could make our problems worse.

Now it is not deliberate national policy to shrink the force, reduce readiness, or slow modernization; and in fact, our stated policies and plans have indicated opposite goals for years. But, the actual pattern is opposite to the desired pattern, and thus appears contradictory and nonsensical. This confusing dichotomy between actual behavior and stated goals raises the question of what our decision-process, either consciously or unconsciously, is actually trying to achieve.

If we view the pattern of actual decisions as the outcome of a goal-seeking process, perhaps, for some undetermined reason, stated goals are not actual goals. At first glance, we may be tempted to argue that our goal is obvious and the pattern described above has been thrust upon us by external forces--e.g., "budget constraints"-- beyond our control. However, before we accept this explanation, we should recognize that that short-term defense decisions are made collectively by forging a consensus reflecting the desires of a continually changing set of individual actors, both in government and out of government, each contributing to the general interest by pursuing his own somewhat different agenda. It may be possible these individual interests combine to shape an outcome that is not in harmony with the general interest. To illustrate: a contractor can not be expected to passively accept the cancellation of his principal product. Even if cancellation is clearly in the national interest, the contractor's survival still depends on continued production; and therefore, he must try to combine his interest with compatible interests of other actors to override a cancellation decision. If he succeeds, the general interest is sacrificed for a coalition of special interests.

It seems unwise to argue that such narrow agendas reflecting influential unstated goals are impossible in an environment dominated by competition for scarce resources, bureaucratic behavior, and consensus-based decision-making. This being the case, we must also admit the possibility that, in a collective sense, the decision process is striving towards some goal that is compatible with the pattern of actual decisions. Can we define such a goal?

If we postulate a decision-process that is--for some unknown reasons--striving to start up and preserve individual procurement programs, and is willing in the near-term, consciously or unconsciously, to finance this effort by trading off readiness, force size, and modernization rate; then we might see a pattern of decisions and plans that is consistent with our observed behavior. It is plausible that a process striving towards this goal while obeying these priorities or values would yield a pattern of decisions and plans which would:

- Try to hold down growth in operating (i.e., readiness) budgets while pumping growth into procurement (i.e., modernization) budgets. Why? Because such plans free up as much money as possible to finance new programs while retaining existing programs.

- Try to avoid cancelling programs, but would tend to slow modernization rates by stretching programs when under budgetary/cost pressure. Why? Because such decisions preserve as many existing programs as possible by trading away modernization rate.

- Try to start new procurement programs as soon as future budget growth assumptions are increased. Why? Because even if the increased future budget growth does not materialize, the process would strive to preserve the programs—via stretch-out--once they get started.

- Tend to underestimate the future costs of individual procurement programs. Why? Because more programs could be started and retained for any five-year budget growth assumption and because the inevitable increase in near-term costs would be absorbed as "unexpected" cost growth in order to preserve individual programs. The willingness to accept procurement stretch-outs and operating budget trade-offs is an incentive to tolerate and finance unexpected cost growth as it emerges.

The goal of starting-up and preserving individual procurement programs provides a perspective that relates the narrow procurement underfunding question to the general pattern of actual readiness, force structure, and modernization decisions. In the following discussion, we examine the idea that the decision-process is directed towards this goal by: (1) establishing that the decision-process, as revealed by our budget plans, is biased towards underestimating future costs of individual procurement programs--a bias making it easier to get new programs started; and (2) by showing how the underfunding pattern preserves programs and tolerates "unexpected" cost growth. We will analyze the stability of the cost and quantity projections contained in the last eight five-year procurement plans and compare these projections to what actually happened during the FY 76-82 time period.

III. Procurement Cost Growth in Historical Perspective

Figure 1 compares the Navy's current FY 83-87 Shipbuilding and Conversion program to two historic five year periods: FY 54-58, a period which stressed aircraft carrier modernization; and FY 59-63, in terms of cumulative budgets, the largest five-year period of the post-WW II era; the FY 59-63 period stressed submarine construction. Budget data is presented in constant FY 83 dollars--i.e., the effects of inflation have been removed--and force structure is presented in terms of numbers of ships authorized by those budgets. Figure 1 says nothing about the capability of the individual ships procured in each period, it merely compares budgets and numbers of ships. A major objective of the current five-year program is to expand the size of the fleet from around 450 to 600 ships.

SHIPBUILDING & CONVERSION

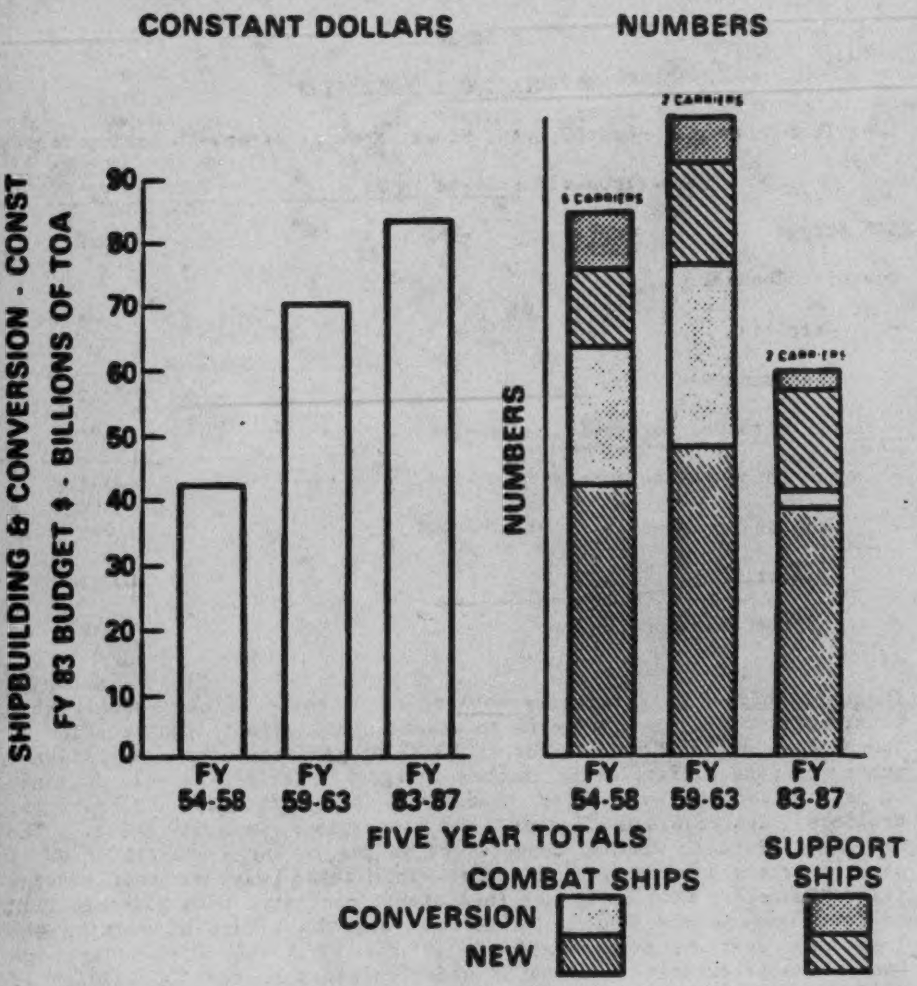

Figure 1

Figure 1 suggests that costs are increasing much faster than budgets. Although, the FY 83-87 Shipbuilding budget would be the largest peacetime budget in history, we plan to buy and convert a smaller number of ships than in either of the two reference periods. Table 1 compares the details of the FY 83-87 program to the two historical periods.

Table 1

SHIPBUILDING & CONVERSION

Long Term Dynamics: Cost Growth, Slower Modernization, Shrinking Forces

Comparison of:	FY54-58 to FY 83-87	FY59-63 to FY 83-87
SCN Budget	+98%	+19%
Quantity Changes		
- Carriers	-60%	-
- Submarines	-	-57%
- Cruisers/Destroyers/Frigates	-34%	-18%
- Amphibious Assault Ships	-18%	-36%
- Warship Conversions	-89%	-92%
- Support Ships	+33%	+3%
- Support Ship Conversions	-68%	-63%

The only shipbuilding category showing an increase is new support ship construction. Figure 1 appears to maintain new warship construction at comparable levels; however, the FY 83-87 program includes a significant number of mine warfare ships in this category. Table 1 reveals declines in all categories of major combatants--i.e., carriers, submarines, cruisers, destroyers, frigates, and amphibious assault ships. The extreme decline in warship conversions is due to large numbers of WW II ships reaching their retirement age. This relatively low cost modernization category will be a much less significant factor in modernization of the fleet in the future. This loss has the effect of raising the long term cost of modernization. If the FY 83-87 Shipbuilding and Conversion procurement account is underfunded, then the $80 billion FY 83-87 budget will be too small to buy the program depicted in Figure 1.

Figure 2, puts the current AF Aircraft Procurement program in a long-term historical perspective, The procurement budgets and quantities for two historical years (i.e., FY 51 & 56) are compared to two planned years (FY 83 and 86). Budgets are given in constant FY 83 $ and FY 51 and FY 56 were chosen because these budgets compare closely to FY 86 and FY 83 respectively. FY 51 is the only year in the post-WW II era that compares to FY 86. The numbers planned for procurement in FY 83 and FY 86 reveal the magnitude of aircraft cost growth. We stress that this chart says nothing about capability per unit, it merely compares dollars to numbers of units. If the FY 83-87 procurement program is underfunded, Figure 2 overestimates the numbers of aircraft that can be procured in FY 83 and FY 86 for the budgets depicted.

LONG TERM DYNAMIC: COST GROWTH, SLOWER MODERNIZATION, SHRINKING FORCES

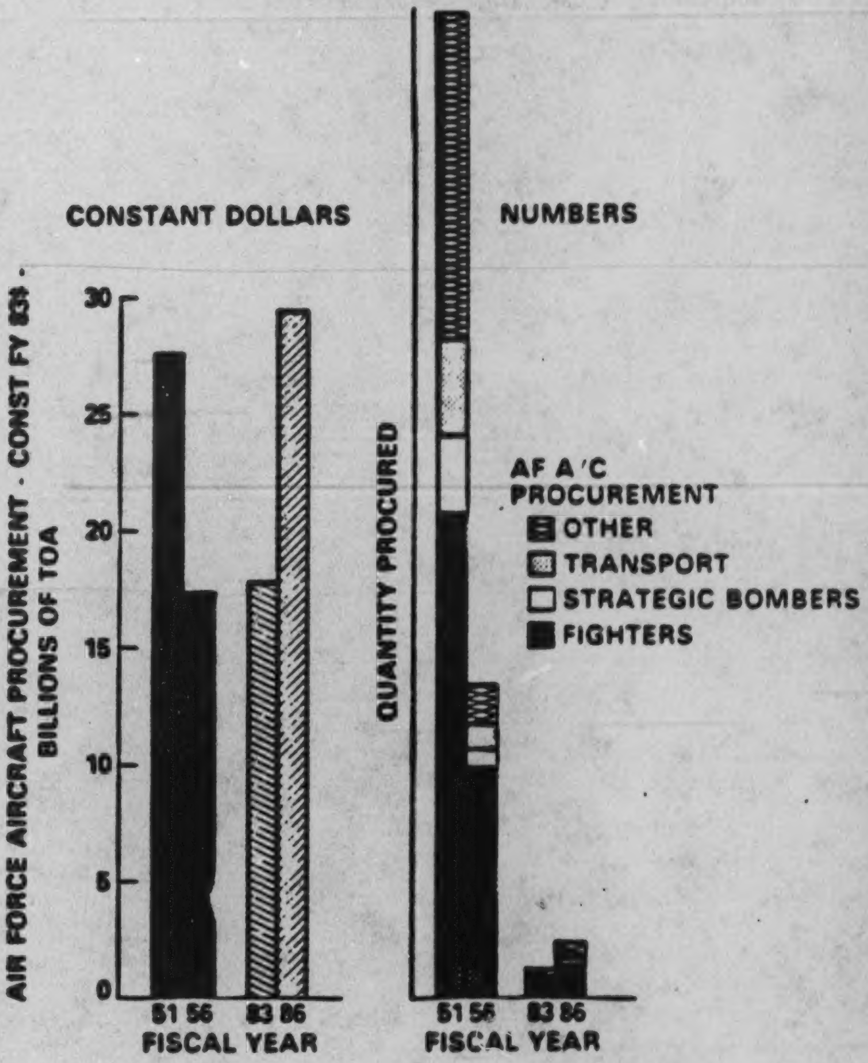

Figure 2

Figures 1 & 2 are typical illustrations of the historical dynamics of procurement: over time constant dollar unit costs have grown much faster than constant dollar budgets, and the result has been smaller quantities of new procurement—i.e., slower modernization--and ultimately shrinking forces.

IV. Procurement Plans: Declining Costs and the Bow Wave

In sharp contrast to this history of cost growth, our FY 83-87 procurement plans generally assume future unit costs will decline. These same plans also assume that the procurement budget will grow faster than the DoD budget as a whole. Taken together, these two crucial assumptions enable our plans to predict faster modernization and growing forces in the future. These two assumptions provide the foundation for the future procurement quantities depicted in Figures 1 & 2.

While the FY 83-87 DoD budget is assumed to have an average annual real (i.e., constant dollar) growth rate of 7% per year, the procurement budget is assumed to have an average annual real growth rate of around 13% per year. The higher procurement growth assumption is financed by the assumption that the operating (i.e., O&M plus MILPERS) budget will grow at a lower rate than the DoD budget. The high growth assumption for the procurement budget is known in Pentagonese as the "Procurement Bow Wave." This phenomenon has existed in our plans for at least the last 10 years albeit at different growth assumptions.

Table II displays projected unit cost changes for 111 procurement programs. This sample includes most of the major weapons programs in the aircraft, missile, weapons, tracked vehicle, and the shipbuilding accounts of the services. The ammunition and "other" procurement accounts are not included in this table (or the appendix). Since, joint service programs (mostly missiles, e.g., AIM-7, HARM, etc.) have different procurement profiles for each service, they are entered separately by service in Table II. While this may appear as double counting, the reader will see that this has absolutely no effect on our discussion and conclusions; furthermore, the differences between services are most intriguing.

The data displayed in Table II were computed from data contained in the FY 83-87 Five Year Defense Plan (FYDP) published in February 1982. Generally, the "% change" column compares the constant dollar average unit procurement cost projected for FY 87 to the FY 83 constant dollar average unit procurement cost. Note that the effects of inflation have been removed. For those weapons not planned for procurement over the entire five years, the table compares the last year of procurement to the first year of procurement. Weapons planned for only one year of procurement— e.g., A-10—are, by necessity, excluded. Table II organizes the data in order of the largest decrease proceeding to the largest increase in predicted unit cost changes.

The data in Table II should be interpreted as follows: using the B-1 as an example, for the last year of procurement, (i.e., in this case, FY 86) our current plans assume, in constant dollars, the average unit procurement cost of the B-1's authorized in that year will be 78% less than the average unit procurement cost of the B-1s authorized in FY 83. Table II is merely a snapshot of first and last year costs, it says nothing about cost profiles over the five-year period. The profile data is contained in the Appendix but the reader is urged not to try to interpret the Appendix before reading the main body of this report.

TABLE II

PROCUREMENT UNIT COST CHANGES PROJECTED IN FY 83-87 FYDP

Program	Service	%Chg-Const$	Program	Service	%Chg-Const$	Program	Service	%Chg-Const$
M-X	AF	-81	MC-130	AF	-32	TOW	A	-9
AMRAAM	AF	-81	Bushmaster	A	-32	Destroyer Tender	N	-8
Laser Maverick	N	-81	EA-6B	A	-31	Chaparral	A	-8
B-1	AF	-78	Eur Dist A/C	AF	-31	Fld Art Spt Veh	A	-8
C-5M	AF	-78	EH-60	A	-31	RIM-67A/B	N	-7
AGM-88	AF	-77	CH-53E	N	-30	UH-60	A	-7
AGM-88	N	-75	TAO	N	-30	F-14	N	-6
GSRS	A	-71	SSN-688	N	-29	FFG-7	N	-6
AIM-54	N	-69	AOE	N	-29	F-5	AF	-6
C-2	N	-69	VTX	N	-28	MK-48 Torpedo	N	-3
AV-8B	N	-65	MK-46 Torpedo	N	-28	MK-75 Gun Mt	N	-3
IIR Maverick	AF	-64	M-1	N	-28	CG-47	N	-3
CBU-89	AF	-62	F-15	AF	-26	C-9	N	0
CBU-87	AF	-61	AIM-9	N	-26	U-12	N	0
TR-1	AF	-59	AIM-7	AF	-25	20mm Combat	AF	0
AH-64	A	-59	BB React	N	-23	30mm API	AF	0
IIR Maverick	N	-58	AE	N	-23	Rockeye	AF	0
Patriot	A	-57	RIM-66B/E	N	-22	MK-84 G.P. Bomb	AF	0
SH-60B	N	-53	E-2C	N	-21	F-16	AF	+1
Hellfire	A	-51	HH-60D	AF	-21	M-88A1	A	+1
DIVAD	A	-51	Adv L.W. Torpedo	N	-20	M-2/3	A	+2
KC-10	AF	-49	Salvage Ship	N	-20	MK-60 Captor	N	+3
Hellfire	N	-45	Bigeye	AF	-20	SH-2F	N	+4
RIM-66C	N	-45	Hospital Ship	N	-19	Airfld Att Wpn	AF	+4
Stinger	A	-43	AH-1	N	-17	E-3	AF	+7
AIM-7	N	-42	AGM-84	N	-17	ALCM	AF	+7
CBU-90	AF	-40	C-140 Repl A/C	AF	-17	30mm Tng	AF	+8
F-18	N	-39	SH-60 CV	N	-16	NGT	AF	+9
BGM-109	N	-39	T-34C	N	-16	C-12	A	+9
LHD-1	N	-38	MCM	N	-14	GLCM	AF	+15
Laser Bomb Kit	AF	-38	DD-963	N	-13	MK-15-CIWS	N	+17
ECX	N	-37	DDG-51	N	-13	Trident SSBN	N	+18
MSH-1	N	-37	AGOS Swath S.	N	-13	RC-12	A	+21
LSD-41	N	-36	P-3C	N	-12	30mm HEI	AF	+22
A-6E	N	-35	Mob Prot Gun-Can	A	-11	GBU-15	AF	+22
AMRAAM	N	-33	Lt Arm Sqd Car	A	-10	UGM-96	N	+36
Pershing	A	-33	Mob Prot Gun-Rec	A	-10	AIM-9	AF	+57

Table III summarizes Table II by categorizing the planned unit cost changes into four arbitrary ranges and sums the planned five-year constant dollar costs of the programs included in each category. Table III reveals that future cost reductions are assumed for 78% of the programs representing 83% of the total cost of the sample, and that large future cost reductions tend to be assumed for large programs--i.e., the programs with the top 10% cost reductions account for 21% of the five-year total. Viewed from this perspective, declining future costs clearly dominate procurement planning. Our plans predict an economic future starkly different from the past.

Table III

DYNAMICS OF INDIVIDUAL PROCUREMENT PLANS

FY 83-87 President's Budget, February 1982

Procurement Unit Cost Change (% Chg-Const $)	Number of Procurement Programs		FY 83-87 Program Cost (Const 83 $-Billions)	
Greater than 65% Reduction	11	(10%)	49.4	(21%)
30% - 64% Reduction	33	(30%)	60.1	(25%)
1% - 29% Reduction	42	(38%)	86.8	(37%)
0 - 59% Increase	25	(22%)	39.3	(17%)
	111	(100%)	235.6	(100%)

V. Rationale for Declining Costs

If we are to assess the likelihood that future unit costs will decline as predicted by our plans, we need to reflect on the assumptions used to justify these declines. Our plans must relate to the world as it is--not to an idealized world based on unrealistic assumptions. What matters is whether our plans take into account the economic, bureaucratic and political realities shaping defense decisions. This criterion should be borne in mind during the following discussion.

Amortization of Initial Costs

Table II indicates that the largest predicted cost declines tend to be associated with weapons that are in the very early stages of production--e.g., M-X, AV-8B, AH-64, etc. For these programs, start-up costs (including such one-time costs such as tooling, initial support investment, plant construction) are high and production rates are low; and because the overhead is spread over few units, unit costs are very high. Later, as production rates increase, the overhead will be spread over more units and one-time costs will cease and consequently unit costs will decline. For these programs we are not concerned whether unit costs will decline; rather, we need to judge how much costs will decline, because the bulk of the procurement is planned in future years at the lower unit costs. If we over-estimate this decline, the program can be seriously underfunded, and after a significant sunk cost we will be faced with the unexpected options of increasing the budget, reducing production rates, or cancelling the program.

We will use a hypothetical example to illustrate the danger of this over-estimation problem. Table II indicates the unit procurement cost of the B-1 is assumed to decline by 78%. For the sake of argument, let's assume that the actual cost declines by only 60% instead of 78%. For simplicity of exposition, let's also assume the cost is constant over the last two years and the FY 83 and FY 84 costs remain as planned. Now under the 78% reduction assumption, the B-1 is planned to have a total procurement cost of $19.9 billion (FY 83 $) between FY 83 and FY 86; under the 60% reduction assumption, the total cost would grow to $25.6B (FY 83 $). In other words, in this example, an over-estimate of the cost reduction by 18% results in a constant dollar program increase of 29%. Furthermore, this increase would not become apparent until we have a large sunk cost at risk--an investment that takes the form of dollars, jobs, reputations, and political/bureaucratic inertia.

Contrary to the economic theory of sunk cost being an irrelevant factor in future decisions, it is common knowledge in the defense business (and government in general) that such sunk costs establish constituent pressures--both in government and out of government--that strongly influence future decisions. Generally, in such situations, it becomes difficult to cancel programs and we are condemned to even higher cost low-rate production stretch-outs.

Learning Curves

Table II also indicates that unit cost declines are predicted for weapons that have been in production for some time--e.g., A-6, F-15, Stinger. Although these declines are generally more modest than the declines predicted for new systems, they are nevertheless significant. The basic rationale used to justify these declines is the economic theory described by the so-called learning curve. Learning curve estimates also account for part of the cost declines predicted for new weapons.

Learning curve theory predicts that costs decline as production increases. The theory hypothesizes that unit costs (either marginal or average unit cost depending on the specific form of the curve being postulated) decrease by a constant percentage every time cumulative production doubles. This hypothesis is specified mathematically:

$$y = AB^X \qquad \text{(eg 1)}$$

where Y = Unit cost (either marginal cost - i.e., the cost of the next unit or average unit cost for the cumulative procurement)

A = Initial Unit Cost

B = Cumulative Production

X = exponent specifying the learning effect.

A simple example will help us understand the implications of this formula: If we assume a 90% marginal cost learning curve, every time cumulative production doubles, the unit cost goes down by 10%. Table IV illustrates how marginal costs would change as a function of cumulative production for a weapon with an initial cost of $10,000.

Table IV
The 90% Learning Curve: Marginal Cost Predictions

Cumulative Production	Unit Cost	% Reduction from $10,000
1	$10,000	-
2	9,000	10%
4	8,100	19%
8	7,290	27%
.	.	.
.	.	.
.	.	.
100	4,965	50%
.	.	.
.	.	.
.	.	.
1000	3,499	65%

Table IV indicates learning curves reinforce the idea of sharp cost declines in the early stages of production. Obviously, this encourages any tendency to over estimate early declines.

Taken literally, the formula says nothing about production rates; the cost predictions are the same if the first 1000 units are produced in a day, a month, a year, or 10 years. The formula also says that, although learning per unit produced decreases with increasing production, it never stops. But we know that production rates do matter and costs don't decline forever. Therefore, the formula cannot be taken literally.

Learning curves cannot be taken literally because they are derived empirically using statistical curve fitting techniques to estimate equation 1--a formula of very limited dimensionality--from actual production costs--a sample of rich dimensionality. Actual costs of production are determined by the simultaneous action of many different factors, some of which change over time. These factors are not specified in equation 1, but they shape the cost data used to estimate equation 1. Once equation 1 is estimated, these factors become, in effect, hidden assumptions which may be buried so deeply in the cost data their existence may be impossible to discern.

The example of production rate illustrates the general limitation of attempting to mathematically specify such a "many-to-one" reduction. Every statistical sample of actual production costs include the effect of a specific schedule of changing production rates. The fitting of standard learning curves uses cost data from production programs which generally embody increasing production rates, particularly in the early stages of production. Any estimate of an equation derived from such cost data would necessarily be premised upon the assumption of increasing production rates. However, there is no way of knowing this assumption by looking at the estimated equation. Put generally, we need "inside information" on each factor that has a significant effect on cost to understand the real meaning of the equation. Now we know that many of these "hidden assumptions" are not constant over time and are not the same for different samples. Consequently, it appears questionable to use the learning curve estimates derived from one sample of weapons to predict the future costs of a different weapon that will be built at a different schedule of changing production rates.

Equation 1 is estimated using a mathematical technique popularly known as regression analysis. For the analysis to be statistically sound, the sample data used to estimate equation 1 must behave in strict accordance with several precise mathematical assumptions. These are: (1) The true underlying function describing the relation between the independent variables and the mean of the dependent variable must be known in advance. Use of the wrong function introduces a bias into any estimate of the mean of the dependent variable. (2) The errors in the dependent variable must be distributed according to a normal distribution. (3) Successive observations of the dependent variable must have independent errors. (4) The variance of the errors must not change with changes in the magnitude of the independent variable. (5) All independent variables must be measured without error.2/

Real world statistical data rarely satisfies all these assumptions. An analysis should not be assumed statistically valid unless each of these assumptions are rigorously tested and found to be satisfied. The results of these tests should be presented with every regression estimate; indeed no analysis can be considered complete without tests of all the assumptions.

We know learning curve theory does not satisfy the first assumption because it is an a priori assumed formula whose constants are fitted to samples of historical cost data. Equation 1 happens to be the most popular formalization and the one that is used to support budget

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2/ Statistics and Experimental Design in Engineering and the Physical Sciences. Volume 1, second edition. Authors Norman L. Johnson and Fred C. Leone. John Wiley and Sons. pg. 433.

predictions. There are however alternative equations that have been hypothesized over the years. Compounding this problem is the fact that there is strong reason to believe equation 1 is not the true underlying function because, as we have seen, it can not be taken literally. When any of the five assumptions are violated, we can not assume statistical confidence in the analysis or any predictions based on the analysis. In this situation, as one authority elegantly stated, we are condemned to futilely trying "to predict the past and remember the future."

The preceding discussion is not intended to suggest that there is no such thing as "learning;" it just suggests that equation 1 is not likely to be an accurate predictor of "learning." There are reasons to believe that costs can decline (at least for a while) with increasing production if certain conditions are met. The following four reasons are generally believed to be real economic factors encouraging cost declines:

1. Labor learning--i.e., increased output per manhour caused by increased job familiarization. This is considered to be the dominant contributor to the learning phenomenon.

2. Management learning--i.e., improved shop organization, engineering liaison, parts and supply systems, quality control, overall management, etc. This is a variation of the improved labor productivity argument.

3. Improved production techniques--i.e., better tool coordination, more easily produced subassemblies, more efficient tools, substitution of cast and forged pieces for machined pieces, etc.

4. Increasing production rates--a fixed overhead gets spread over more units as production rates increase.

However, for these factors to have a cumulative long term effect, certain conditions must be met. These conditions relate to maintaining a stable production environment over time. For example, we should have:

- A fixed design - if the design of the weapon is continually being changed, management and labor must continually re-learn and reorganize.
- Stable manpower - high turnover means re-learning
- Stable, or at least predictable, flows of parts and raw materials so management can learn to make efficient inventory decisions and rationale investments in improved production capability.
- Stable, or at least predictable, budgets and production rates so management can plan an economically efficient production program.

Now if there is one thing that does not characterize defense planning, it is this kind of stability: designs continuously change; flows of parts and materials are interrupted constantly; production rates change, in part because of cost and budget changes; budgets change sharply from year to year; etc. Many of these instabilities are built-in to the political/bureaucratic/economic environment influencing our plans and decisions, and therefore, cannot be eliminated. For example, to make budgets stable over the long-term, the Congress must make a long-term commitment not to adjust the growth in annual appropriations. It is hard to imagine a stable agreement of this sort as long as elections are held every two years.

Shipbuilding and Conversion

The comments of the preceding two sections do not completely apply to shipbuilding. Table II reveals cost declines are predicted for several ship classes. In general, there are two reasons for these declines First, the lead ship of a class will always cost more than subsequent ships and costs may decline for the first three or four ships as building methods and designs evolve. Given current production practices, costs should not be expected to decline over the long-term because production occurs over long intervals (i.e., at very low rate), shipyard personnel turns over at a relatively high rate, and design changes are frequent. With the exception of early ships, our budgets generally level fund the weapon system cost of ships.

Second, Table II depicts predicted procurement unit cost changes. For shipbuilding, our budgets account for procurement unit cost as follows:

+ (Weapon System Cost)
− (Prior year advance procurement)
+ (Current year advance procurement)
+ (Outfitting)
+ (Post Delivery)
+ (Cost Growth)
+ (Shipbuilding Escalation)
(Procurement Cost)

The reasons for our use of procurement cost instead of weapon system cost are explained in Section VII. Year-to-year changes in procurement cost can be different from changes in weapon systems cost depending on the changes in the other categories. For most weapons produced in quantity, this difference is negligible; however, in the case of ships it can become significant. The difference particularly applies to the categories of "cost growth" and "shipbuilding escalation." In our five-year plans, these categories are funded for the budget year but not for the four future years.[3] For example, although the SSN-688 is programmed for procurement in each of the five years between FY 83-FY 87, we budget "cost growth" and "shipbuilding escalation" for FY 83 only. Consequently, there is an apparent cost decline between FY 83 and FY 84. Next year (i.e., the FY 84-FY 88 plan), we will add cost growth and escalation to FY 84, in effect raising the cost in FY 84 over the current planned cost but we will not include these categories in the FY 85-FY 88 estimates.

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[3] The current draft of the FY 84-88 FYDP includes escalation projections in the four future years; however, these estimates were made to resolve a computational error in the FY 83-87 FYDP. It is this author's understanding that the incremental funding would be added to these estimates.

For each of the last 7 years we have added substantial funds to cover these categories. Table V displays the funds (in constant 83 $) added annually to the shipbuilding account during this period.

Table V

Incremental Funding Added to Cover Cost Growth and
Shipbuilding Escalation
(Constant FY 83 $-Millions)

Fiscal Year	Cost Growth	Escalation	Total
76	1417	623	2040
77	2185	1313	3498
78	699	-	699
79	926	96	1022
80	195	145	340
81	-	284	284
82	258	199	457

Now ships can take up to 8 years to build and this money is needed to cover the unplanned effects of cost growth and inflation on ships initiated in prior years. It is budgeted as the bills are expected to come up for payment in the budget year. The Navy can estimate future year requirements; however; by agreement with OSD, the Navy is not required to include these estimates in the five- year budget plan. As a result, the out-year shipbuilding program tends to be underestimated.

VI Plans and Reality

The assumption of declining future costs contains certain dangers and limitations that can lead to a mismatch between plans and reality. For example, while the amortization of initial costs is a real economic effect, we have seen how its use can lead to severe long-term underfunding problems if we over-estimate the cost declines. This risk of over-estimation is magnified by the use of the learning curve--a theory which reinforces the idea of sharp initial cost declines--and by the fact that future cost estimates are very uncertain for a program just entering production because costs are, by necessity, predicted from theoretical data as opposed to actual production experience. The danger is that a decision-process striving to start-up and preserve individual programs would, by its very nature, be prone towards over-estimating these cost declines; and at the same time, our resistance to this optimism would be weakened by the combination of a reinforcing theory and the uncertainty surrounding the future cost predictions.

The theory of learning also deals with a real economic effect. There is no question that learning can occur. However, the use of one specific learning curve formula as a general planning tool for predicting future budget costs--i.e., the basic building blocks of our procurement plans--seems inappropriate. The learning curve formula suffers from three limitations with the potential for creating mismatches between budget plans and reality. First, the learning curve formula cannot be taken literally; it contains hidden assumptions impairing the formula's general application to planning. Second, the procedure for estimating the learning curve slope from historical costs does not appear to satisfy the stringent requirements for a statistically sound regression analysis. However, the impression of mathematical precision and the computational complexity of regression can seduce us into a false sense of confidence in the analysis. Third, and most important, the theory of learning assumes unrealistic conditions of stability that simply do not reflect the unstable realities defense planning must deal with.

The practice of incrementally funding cost growth and escalation in the shipbuilding account is likely to encourage increased underfunding problems in the future. In view of (1) the large increases planned for the shipbuilding budget; (2) a modernization program stressing high complexity, high cost ships with their attendant cost uncertainties; (3) the history of large incremental funding requirements (i.e., Table V) being associated with much smaller shipbuilding budgets; and (4) the fact that it is possible to anticipate (at least imperfectly) future cost growth and escalation requirements: It seems increasingly unrealistic to construct future budget plans that, in effect, assume cost growth and escalation ceases to exist in the out-years. To the extent that we continue to plan this way, we appear to be deceiving ourselves about our future budget requirements.

VII A History of the Mismatch Between Plans and Reality: The Case of Tactical Fighter Procurement

The stark contrast between our history of sharply rising costs combined with our inability to fund the procurement bow-wave and our plans which assume both declining costs and the ability to pump sharp growth into the bow-wave is cause for deep concern. If either planning assumption does not materialize, we will face a serious procurement underfunding problem. If the future repeats the general pattern of the past and both assumptions don't materialize, the decisions described in Section I present a specter of ominous proportions--particularly if the influence of constituent interests cannot be contained.

Although the bow-wave has been a characteristic of our five-year plans for years, it has never materialized. In Section II, we described how the short-term tendency to pump growth into the procurement budget has been frustrated over the long-term by the relentless growth in operating costs. Since the equipment coming into the inventory over the next five years continues to be more expensive to operate and support than the equipment being replaced, since force size is projected to grow in the future, and because readiness was allowed to atrophy during the 1970s (in effect, running up a deferred readiness cost) there is strong reason to suspect that the operating budget will continue its upward trend--perhaps at a faster rate than planned. Whether or not we can sustain a procurement bow-wave in the presence of this increasing cost pressure is highly uncertain. The best that can be said about a modernization plan premised upon a bow-wave assumption is that it is an optimistic high-risk plan which relies on a historically discredited assumption.

There is also nothing new in the assumption of declining future costs, our five-year procurement plans have routinely made this assumption for years. The preceding section described how the rationale justifying this assumption is subject to serious a priori limitations. When we combine these limitations with the observation that the declines predicted heretofore have not materialized, we are left with the suspicion that this assumption also reflects unrealistic optimism. The remainder of this section examines the realism of the declining cost assumption by comparing the cost/quantity predictions of the last eight five-year procurement plans to the actual quantities and costs of the equipment procured.

A Note on Method

Our basic approach will be to construct an analog to the learning curve from the cost/quantity projections contained in our plans and to compare this to a similar construction derived from what actually happened. The data used in the following discussion were obtained from the Procurement Annexes of the last eight Five Year Defense Programs (FYDPs) put together each January as part of the President's budget request for the following fiscal year. The example of the F-15 will be used to illustrate the method of construction.

Table VI

F-15 Cost/Quantity Predictions Contained in the FY 76-80 FYDP

	FY 76*	FY 77	FY 78	FY 79	FY 80
Quantity	Q_1	Q_2	Q_3	Q_3	Q_4
(+) Weapon System Cost					
(-) Prior Year Adv. Proc.					
(+) Current Year Adv Proc.					
(+) Initial Spares					
Procurement Cost	X_1	X_2	X_3	X_4	X_5
Anticipated Escalation	Y_1	Y_2	Y_3	Y_4	Y_5
1. Const $ Proc. Cost (76$)	(X_1-Y_1)	(X_2-Y_2)	(X_3-Y_3)	(X_4-Y_4)	(X_5-Y_5)
2. Const $ Unit Proc. Cost (76$)	14.8	11.8	9.1	7.8	7.2
3. Const $ Unit Proc. Cost (83$)	27.0	21.5	16.6	14.2	13.1
4. Cumulative Proc. Qty.	Q_1	(Q_1+Q_2)	...	....	$(Q_1+Q_2+Q_3+Q_4+Q_5$

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* FY 76 includes the extra transition quarter, i.e., FY 6T.

Table VI describes the standard accounting scheme and the F-15's future cost predictions for FY 76 through FY 80 as they were made in January 1975. Our learning curve analog will use the constant dollar average incremental procurement unit cost as a surrogate for marginal cost. This construction has the important advantage of taking out the errors caused by faulty prediction of future inflation. The accounting entry "Anticipated Escalation" specifies the original inflation forecast used for each future year of the five-year plan and this forecast is tied uniquely to the outlays associated with the the F-15's procurement cost. Poor forecasts of inflation are often cited as major causes of cost growth. In the analysis that follows, this source of cost growth (and confusion) has been eliminated; however, by necessity, we must use procurement cost as our measure.

Two disadvantages to using "Procurement Cost" as a measure of cost are often cited. One is that the subtraction of "Prior Year Advanced Procurement" and the addition of "Current Year Advanced Procurement" distorts the measure of unit cost--cost being defined in a strict economic sense. It does not distort our prediction of unit budget requirements. The cost argument is technically correct, but it is a red herring because we are talking about a relatively small component of total cost for most weapons being produced at even a moderate rate. The biggest distortion occurs in the very low rate unstable production of ships. Bear in mind that the distortion is caused by the net effect of a subtraction and an offsetting addition. For example, examination of the current draft of FY 84-88 FYDP reveals for the F-15, M-1, and

SSN-688 respectively that the largest net effect when measured as a percentage of procurement cost, in any one of the next five years (i.e. FY 84-88 Budget Estimate Submission), is 5.0%, 6.6%, and 6.0% for each weapon respectively.

The second disadvantage often cited relates to the inclusion of initial spares in the measure of procurement costs. Learning curve purists object to the inclusion of initial spares; however, from a planner's perspective, they are part of the necessary investment and therefore need to be included. Too often in the past, initial spares have been sacrificed to give the appearance of lower procurement costs. Furthermore, if a learning curve exists, initial spares should also experience decreasing costs. For these three reasons, this author believes that the inclusion of initial spares is an advantage, not a disadvantage.

In any event, both disadvantage arguments miss the central point that we are analyzing the realism of our budget plans. If one substitutes the phrase "planned unit budget requirements" for the notion of "unit procurement cost," we will see that "planned unit budget requirement" predictions project declines (that are often of the same shape as a learning curve "cost" prediction) that, for a variety of reasons, do not materialize.

Given this situation, the reader will see why we use unit procurement cost: the advantage of removing the confusing effects of our inability to forecast inflation far outweighs any minor disadvantages caused by the inclusion of advanced procurement and initial spares. The principal analytical advantage of using the learning curve analog is that it provides a common, easy-to-use frame of reference to compare different five-year plans--i.e., a vertical slice on the graph is a constant cumulative production quantity--i.e., the same point on the learning curve--regardless of which year's budget you are looking at.

The calculation proceeds as follows: Using procurement cost as calculated in Table VI:

1. Calculate total FY 76 constant dollars annual procurement cost by subtracting "anticipated escalation" from procurement cost for each future year.

2. Calculate average incremental procurement unit cost (FY 76 $) by dividing "1" by the quantity planned for each year. Note: This is a marginal cost surrogate; it calculates the average unit cost for each annual increment of procurement.

3. Convert "2" to FY 83 constant dollars by dividing "2" by .549--i.e., the FY 76 to FY 83 outlay deflator. Once we make a constant dollar calculation, we can convert it to any base year we desire using a historical deflator index. We are going to convert the constant dollar predictions of the last eight five-year plans to a constant FY 83 dollar baseline so we can compare one plan to another. Even though we will be

accounting for some future years (e.g., in the FY 81-85 plan, FY 85 will be converted first to FY 81 dollars by subtracting out anticipated escalation and then to FY 83 dollars by dividing by the FY 81 to FY 83 deflator), this portion of the calculation uses historical (i.e., reasonably known) deflators only. For instance, FY 85 in the previous parenthetical example is converted to FY 83 dollars using a historical FY 81 deflator.

4. "3" is then plotted on the vertical axis of a graph versus the cumulative quantity produced from 1975 (i.e., we assume 1975 = 0) on the horizontal axis. Note: we are forced to start with the FY 76-80 program because this is the first program that explicitly accounts for predictions of future inflation,i.e. it is impossible to remove the effects of the inflation forecasting error from previous five-year programs.

From Table VI, we see that in January 1975, we predicted the F-15 would cost $14.8M a copy in FY 76 dollars (or equivalently, $27M in FY 83 dollars) and that this cost would decline smoothly over the next five years to $7.2M a copy in FY 76 dollars (or equivalently, $13.1M in FY 83 dollars) in FY 1980.

F-15 COST PREDICTIONS FY 76-80 FYDP, JAN. 1975

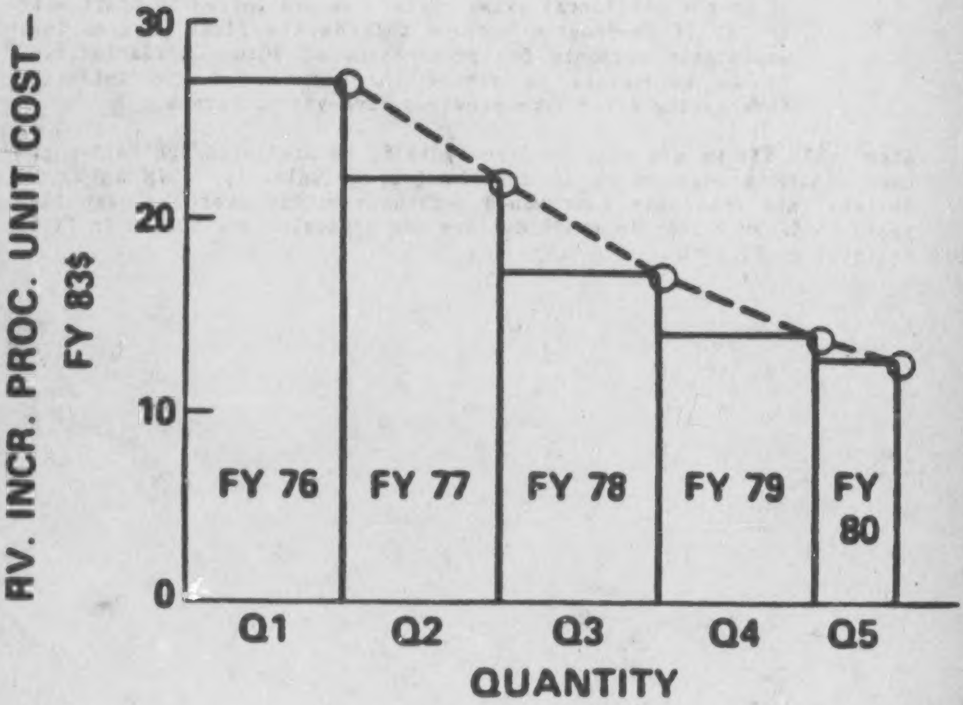


Figure 3

Figure 3 graphically displays these future cost declines predicted for the F-15 in January 1975. Since we are using average incremental cost in our analysis, the bar chart showing the average cost for each annual quantity increment is the most accurate representation. However, we want to compare different programs and it is easier to make the comparison if we approximate the bar chart with a curve because this enables us to put more than one five-year program on a single chart. The curves in the following figures are constructed in the same way that the dashed line in Figure 3 is constructed. Specifically, the cost associated with any annual increment will be plotted against the cumulative quantity (from 1975=0) up to and including the end point of that annual increment.

The Case of Tactical Fighter Procurement

This section examines the realism of the declining cost assumption. Specifically, for tactical fighters taken as a group, we will examine the changes in the cost/quantity predictions contained in the last eight FYDPs and compare these changes to the costs and quantities of weapons actually procured. The group of tactical fighters includes the following USAF, USN, and USMC fighter/attack aircraft: A-4, A6, A-7, AV-8, A-10, F-5, F-14, F-15, F-16, and F-18.

These aircraft costs will be pooled and examined collectively because we want to determine the overall effect on procurement planning of year to year changes in individual weapon procurement plans. The data for 116 individual weapons procurement plans is contained in the Appendix. Using the method developed in the preceding section, we can calculate the cumulative cost/quantity data for a fictional "average fighter." For the aircraft in our sample, we first sum the total constant dollar procurement cost and the total quantity for each year, and then proceed according to the steps described in the preceding section. In effect, this method computes the weighted average procurement unit cost of the fighters in our sample and plots this against the total quantity of aircraft procured. The next eight figures plot these cost/quantity projections for the last eight FYDPs. The curves in each figure are constructed in accordance with the technique described by the dashed line in Figure 3. Bear in mind during the following discussion that these curves are constructed as rough analogs of a marginal cost learning curve.

Figure 4 displays the cost/quantity projections in the FY 76-80 FYDP, published in January 1975. The box contains the projected unit cost changes (in constant dollars) between the first and last year of procurement for each weapon in the sample. These data are similar to the data presented in Table II. To illustrate: Table VI indicates the cost of the F-15 (in FY 83 $) was projected to decline from $27M in FY 76 to $13.1M in FY 80; this change of -51% is given in the box of Figure 4.

TACTICAL FIGHTER PROCUREMENT PLANS: PREDICTED COST AND CUMULATIVE QUANTITY (FY 76-80 PRESIDENT'S BUDGET, JAN 75)

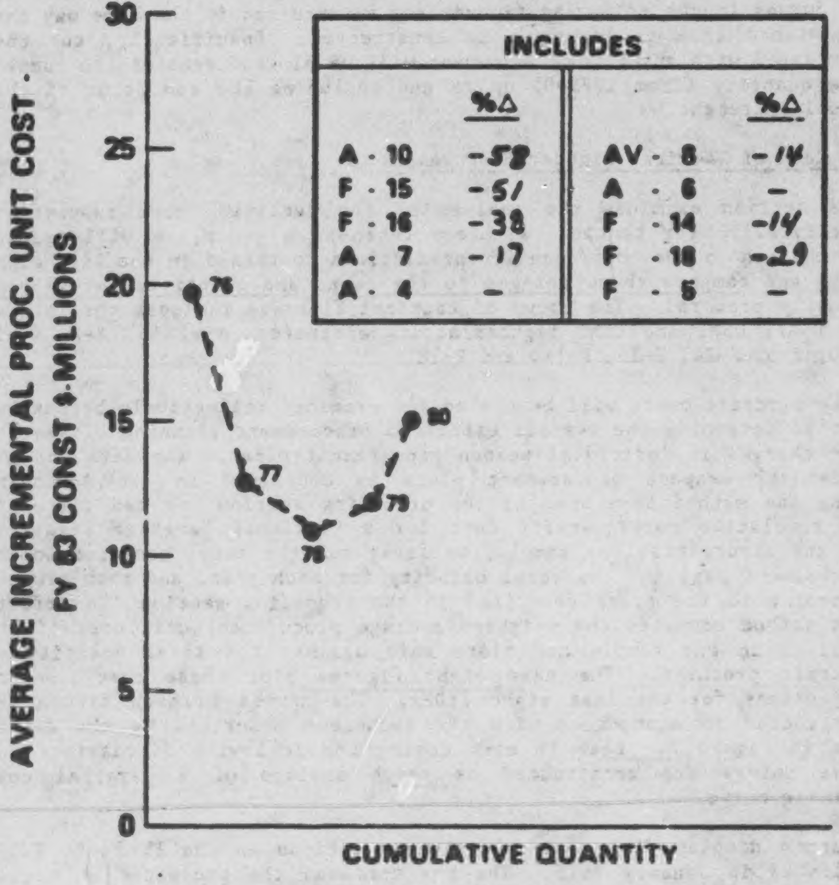


Figure 4

Figure 4 reveals a general pattern: higher costs in the present and lower costs predicted for the future. The increases that were projected for FY 79 and FY 80 are due to a change in the mix of the aircraft making up the sample: lower cost, more mature aircraft such as the A-10 were projected to drop out and higher cost aircraft such as the F-18 and AV-8B were projected to start up production. The net effect of these changes was to raise the average cost even though the costs of each individual fighter were still projected to decline.

Figure 5 displays the next five-year program--i.e, the FY 77-81 FYDP--published one year later. Note that we are still accumulating quantity from 1975 = 0. The first point on the chart (marked with a circle) depicts the average cost and the quantity actually appropriated in FY 76. Comparison of Figure 5 to Figure 4 reveals some changes. First, the average cost for FY 77 is much higher in Figure 5 than in Figure 4. In Figure 5, FY 77 is the budget year estimate--it represents the request we sent to Congress for the next fiscal year appropriation. In Figure 4, FY 77 is one year beyond the budget year. Second, while we absorb unexpected cost growth in the budget year, Figure 5 has the same general pattern as Figure 4: higher costs in the present, lower costs in the future. Third, we see that the projected cost changes depicted in the boxes change considerably--e.g., the F-14 goes from -14% in Figure 4 to +46% in Figure 5.

TACTICAL FIGHTER PROCUREMENT PLANS: PREDICTED COST AND CUMULATIVE QUANTITY (FY 77-81 PRESIDENT'S BUDGET, JAN 76)

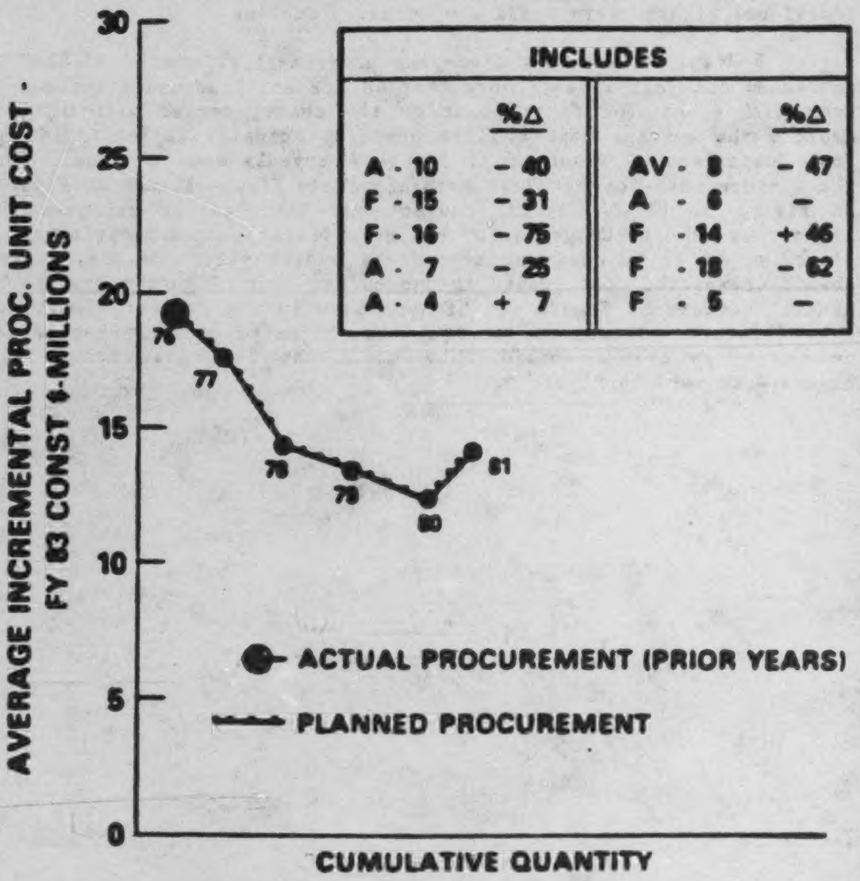
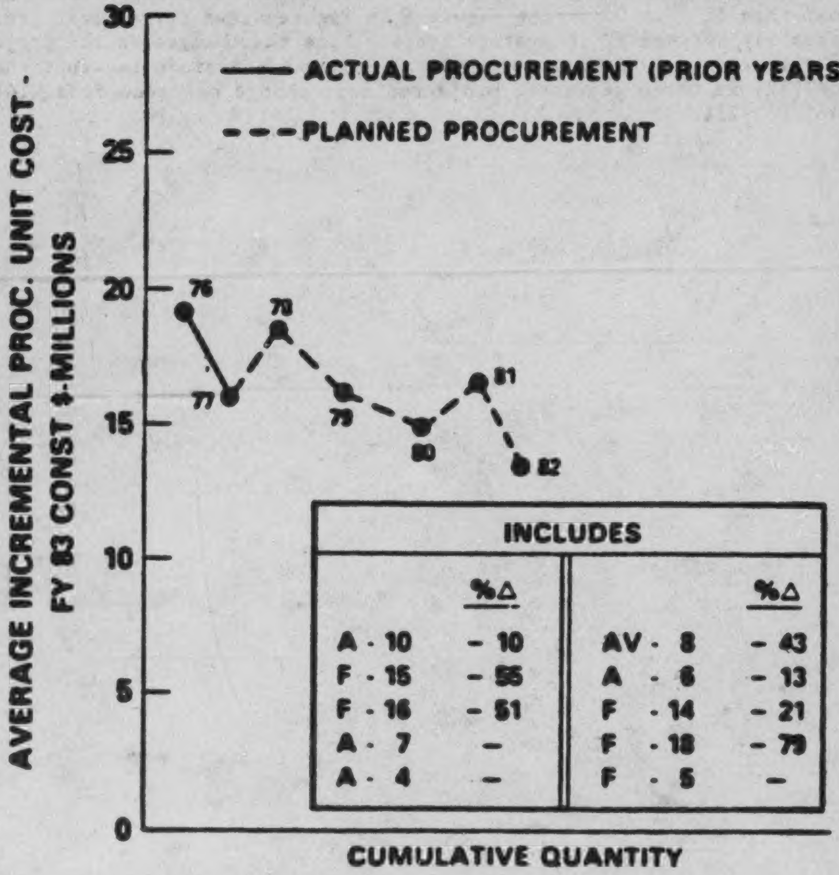


Figure 5

Figure 6 displays the cost/quantity projections for the third consecutive five-year plan--i.e., the FY 78-82 FYDP. Still proceeding from 1975=0, the heavy solid line depicts what was actually achieved in FY 76 and FY 77. FY 78 is the budget year and FY 79-FY 82 are the four future years. The general pattern of cost decline in the future is repeated. However, FY 78 now has a higher cost than FY 77; just one year earlier (i.e., in Figure 5), FY 78 was projected to have a substantially lower cost than FY 77. Comparing Figure 6 to Figure 4, we see an even greater disparity between FY 78 average costs. Note the changes in the projected cost changes. For example, the F-14 now has a projected cost change of -21%: in three years the projected cost change has gone from -14% to +46% to -21%.

TACTICAL FIGHTER PROCUREMENT PLANS: PREDICTED COST AND CUMULATIVE QUANTITY (FY 78-82 PRESIDENT'S BUDGET, JAN 77)



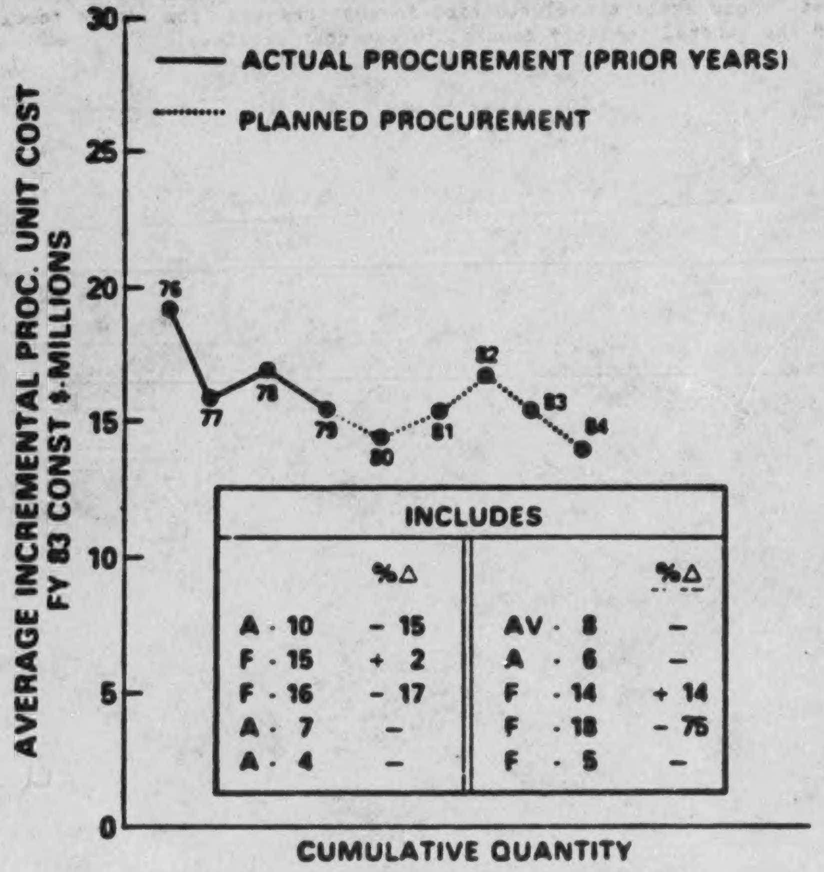
INCLUDES

	%Δ		%Δ
A - 10	- 10	AV - 8	- 43
F - 15	- 55	A - 6	- 13
F - 16	- 51	F - 14	- 21
A - 7	—	F - 18	- 79
A - 4	—	F - 5	—

Figure 6

Figures 7, 8, and 9 display the cost/quantity profiles for the next three consecutive five-year plans; again, the heavy solid line depicts what was actually achieved from 1975-0. The cost declines that actually occurred in FY 79 and FY 80 are due to the overwhelming effects of the Air Force modernization program--relative to the Navy, the Air Force bought larger quantities of lower cost aircraft, and Air Force aircraft generally declined in cost, while Navy aircraft generally increased in cost. Note again the fluctuation in cost changes from figure to figure and the general tendency towards future cost declines.

TACTICAL FIGHTER PROCUREMENT PLANS: PREDICTED COST AND CUMULATIVE QUANTITY (FY 80-84 PRESIDENT'S BUDGET, JAN 79)

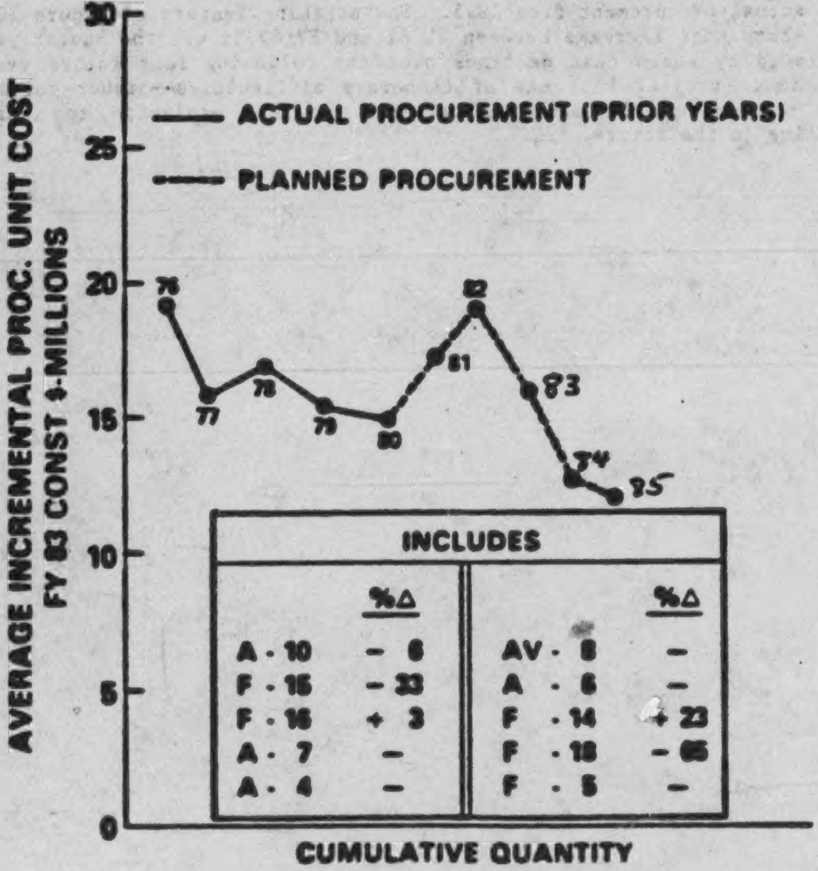


INCLUDES

	%Δ		%Δ
A - 10	- 15	AV - 8	–
F - 15	+ 2	A - 6	–
F - 16	- 17	F - 14	+ 14
A - 7	–	F - 18	- 75
A - 4	–	F - 5	–

Figure 8

TACTICAL FIGHTER PROCUREMENT PLANS: PREDICTED COST AND CUMULATIVE QUANTITY (FY 81-85 PRESIDENT'S BUDGET, JAN 80)



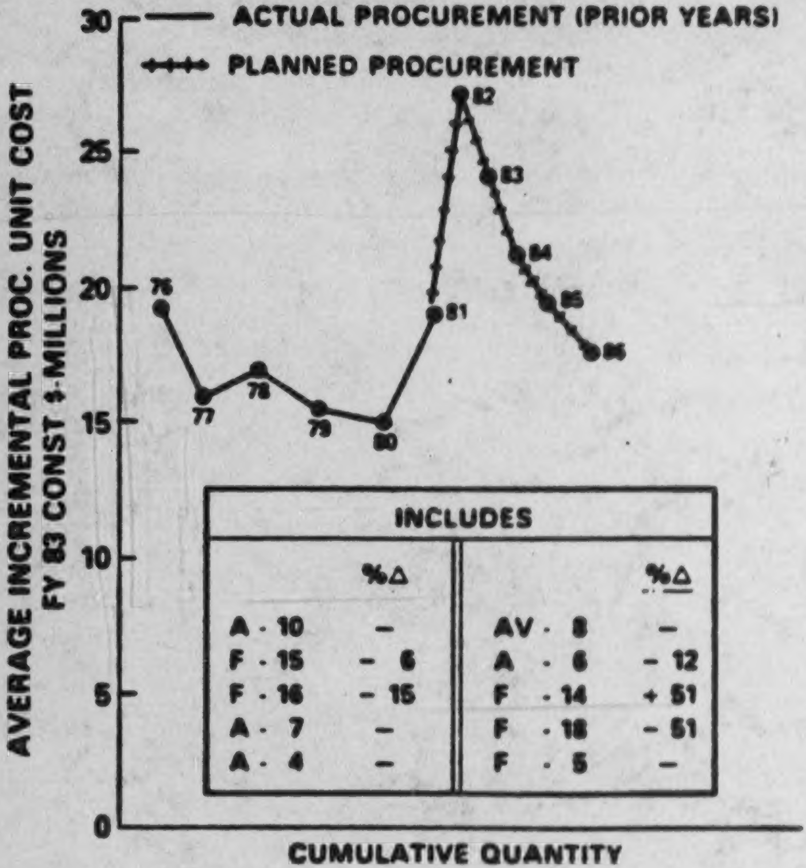
INCLUDES

	%Δ		%Δ
A - 10	− 6	AV - 8	—
F - 15	− 33	A - 6	—
F - 16	+ 3	F - 14	+ 23
A - 7	—	F - 18	− 65
A - 4	—	F - 5	—

Figure 9

Figure 10 displays the cost/quantity predictions for the FY 82-FY 86 FYDP as they existed before the administration changed in January 1981. The new administration changed this program somewhat; however, a procurement annex reflecting these changes was never published. For the sake of consistency, we will use the unamended FY 82-86 program. In the case of our example, the FY 82 amendments had a minor effect on the budget year. The heavy solid line connecting FY 76 to FY 81 reflects the actual procurement from 1975. The striking feature of Figure 10 is the sharp cost increase between FY 81 and FY 82 (i.e., the budget year) followed by sharp cost declines over the following four future years. The image projected is one of temporary difficulties--higher costs in the present can be accepted because they are projected to sharply decline in the future.

TACTICAL FIGHTER PROCUREMENT PLANS: PREDICTED COST AND CUMULATIVE QUANTITY (FY 82-86 PRESIDENT'S BUDGET, JAN 81)



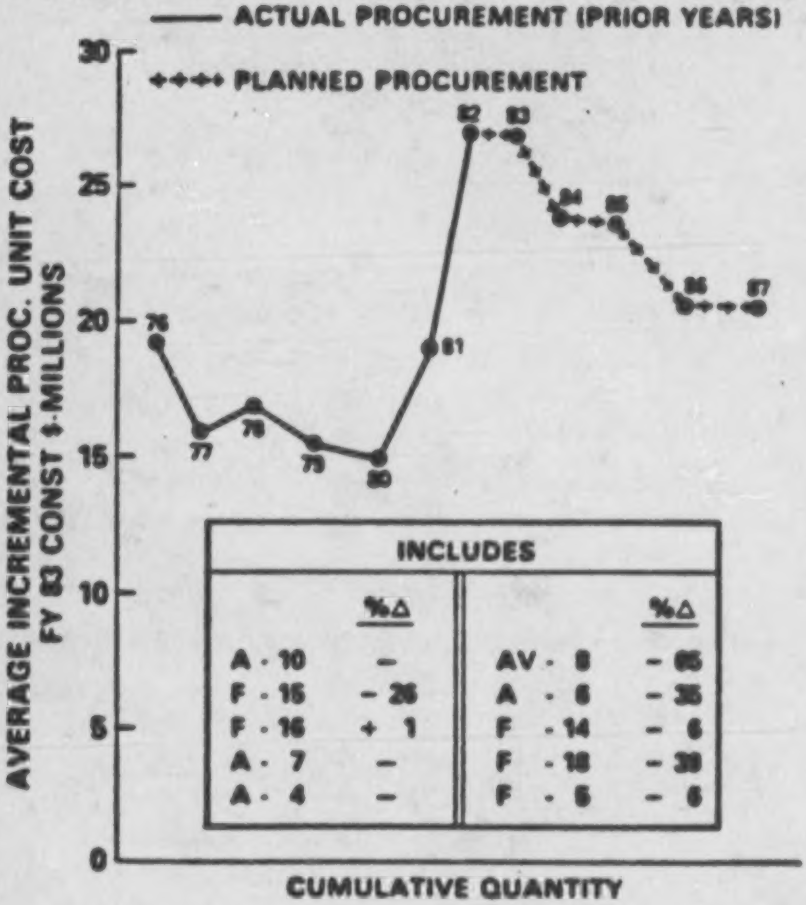
INCLUDES

	%Δ		%Δ
A - 10	–	AV - 8	–
F - 15	- 6	A - 6	- 12
F - 16	- 15	F - 14	+ 51
A - 7	–	F - 18	- 51
A - 4	–	F - 5	–

Figure 10

The cost/quantity projections for the FY 83-87 FYDP are depicted in Figure 11. Comparing Figure 11 to Figure 10, we see a now familiar pattern: the budget year--i.e., FY 83--has increased over the level projected one year earlier, but costs are projected to decline in the future. Moreover, we see the real cost declines achieved in the last half of the 1970s have been wiped out--the real cost of fighter modernization over the long-term has increased substantially.

TACTICAL FIGHTER PROCUREMENT PLANS: PREDICTED COST AND CUMULATIVE QUANTITY (FY 83-87 PRESIDENT'S BUDGET, JAN 82)



INCLUDES			
	%Δ		%Δ
A - 10	–	AV - 8	- 65
F - 15	- 26	A - 6	- 35
F - 16	+ 1	F - 14	- 6
A - 7	–	F - 18	- 39
A - 4	–	F - 5	- 6

Figure 11

The solid line in Figure 11 graphs the cumulative quantity of fighters procured from FY 1975=0 through FY 1982 (on the horizontal axis) versus the average cost of each annual increment on the vertical axis. Figures 4 through 11 put the cost/quantity projections of our five-year plans in a similar format. Now, we can combine all the projections with the solid line of Figure 11 on one chart--in effect, giving us a snapshot comparing the history of our plans with the history of reality. Figure 12 displays this combination.

PLANS/REALITY MISMATCH: AVERAGE INCREMENTAL COST OF A TAC FIGHTER

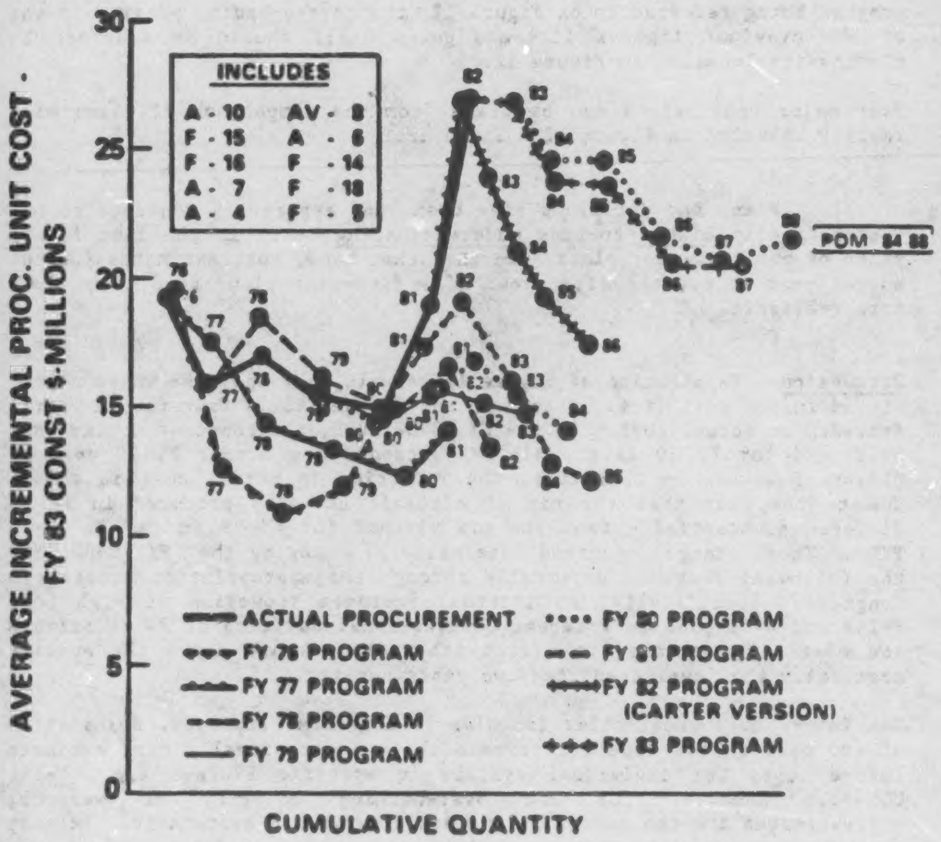


Figure 12

Figure 12 is most important; it should be carefully reviewed. In addition to the 8 five-year plans already discussed, Figure 12 also includes the first estimate of the FY 84-88 five-year plan--i.e., the POM: 84-88--to be submitted next year. Once again, the pattern of change is the same. The charts in the appendix present equivalent information for 116 individual weapon systems. If, during the following discussion, the reader has trouble locating a particular five-year program being referred to on Figure 12, the corresponding program in one of the previous figures (i.e., Figures 4-11) should be examined to clarify its location in Figure 12.

Four major conclusions can be drawn from the comparison of plans with reality revealed in Figure 12. These are:

1. Plans and decisions have been, and apparently continue to be, systematically biased towards underestimating costs in the four future years of our five-year plans. On the other hand, cost estimates for the budget year (i.e., the first year of a five-year plan) tend to be much more realistic.

Discussion: Examination of Figure 12 reveals only one case where a predicted future cost (i.e., a cost in one of the FYDP's four future years) exceeded an actual cost. In the FY 78-82 FYDP, the constant dollar cost predicted for FY 79 (i.e., $16.2M) exceeded the actual FY 79 cost of $15.4M. However, in this case, the reduction in actual cost is solely due to the fact that the mix of aircraft actually procured in FY 79 differed substantially from the mix planned for FY 79 in the FY 78-82 FYDP. These changes occurred internally by changing the FY 79-83 FYDP the following year and externally through the appropriation process in Congress. Specifically, an internal Pentagon reduction of high cost F-14s and A-6s plus an external Congressional addition of 24 relatively low cost A-7s combined to offset other changes and drive the average cost below the level predicted two years earlier.

The future cost underestimation bias is a general tendency. Examination of the data in the appendix reveals that we occasionally over estimate future costs for individual systems in specific FYDPs-- e.g., F-14, UGM-96. However, for the overwhelming majority of weapons, overestimates are the exception and are clearly non-systematic. In many cases, these overestimates occur because extreme production cuts were planned (thus raising costs) but for a variety of reasons failed to materialize--e.g., the A-6 in the FY 82-86 FYDP.

Figure 12 reveals that the future year cost estimates in POM:84-88 exceed the same estimates for the FY 83-87 FYDP. Examination of the Appendix reveals that such increases are widespread. For example, the following programs have cost increases of this type in at least two of the four future years: AIM-7 Sparrow, KC-10, E-3A, C-140B, Tanker-Transport-Bomber Trainer, HH-60D, M-X, ALCM, CBU-87, CBU-90, Bigeye, F-14, F-18, AV-8B, EA-6B, CH-53E, SH-60B, E-2C, U-12B, C-2, Trident II Missile, BGM-109, AIM-54, AGM-88, RIM-66C, Laser Maverick, Adv. Lightweight Torpedo, MK-60 Captor Mine, MK-75 Gun Mount, Trident

Submarine, SSN-688, CG-47, LSD-41, LHD-1, MCM, MSH-1, AD Destroyer Tender, TAO, AOE-Fast Combat Support Ship, RC-12 Guardrail, Chapparal, Patriot, Pershing, M-1 Tank, and Bushmaster. Bearing in mind that these changes occurred in the five months between publication of the FY 83 FYDP and the POM: 84-88, and that the pattern of these changes is similar to the historical pattern, it is reasonable to conclude that the future year underestimation bias continues to destabilize our plans. At a minimum, in any argument about the uncertain future, the burden of proof lies with those who would argue that the underestimation bias no longer exists.

2. The pattern of change in the cost predictions for the four future years of successive five-year plans reveals a process of incrementally absorbing cost increases over time as a future year approaches the budget year while, at the same time, continuing to project declining costs into new future years as they enter the five-year planning window.

Discussion: Table VII reveals a general mechanism for both absorbing cost growth and numbing us to its effect. The rows of Table VII contain the average unit costs projected in the last four years for each of the eight FYDPs depicted in Figure 12. The budget years (i.e., first years) of each FYDP are not included. Moving down a column designating a particular future year, the year in question moves closer in time to the budget year in successive FYDPs. In Figure 12, this would generally be equivalent to connecting the points for a given year from the bottom to the top. Nine columns in Table VII have more than one entry for a given year, and seven of these columns (the exceptions being FY 80 and FY 81) exhibit systematically increasing costs as one goes down the column. In the case of FY 80 and FY 81, a shift to a substantially lower cost aircraft mix occurs as one goes down these columns (representing internal changes to successive FYDPs) that, in overall effect, offsets the increasing costs of the individual aircraft making up the mix. If one moves from left to right across the rows, costs also generally tend to decrease. New future years entering the planning window (i.e., the entry furthest to the right in each row) generally project continued cost declines. The exceptions to this pattern (i.e., the top two rows) are also caused by changes in the aircraft mix making up the sample.

Table VII

Dynamics of the Future Years

FYDP	Planned Future Year Average Unit Cost (Const 83 $)										
	77	78	79	80	81	82	83	84	85	86	87
FY 76-80	12.7	10.8	11.9	14.8							
77-81		14.4	13.4	12.3	14.1						
78-82			16.2	14.9	16.5	13.4					
79-83				14.5	15.8	15.4	14.9				
80-84					15.4	16.7	15.4	14.0			
81-85						18.9	15.9	12.7	12.0		
82-86							23.8	21.0	19.1	17.4	
83-87								23.8	23.6	20.6	20.6

"Future Year" = last four years of FYDP

An examination of the individual programs in the Appendix reveals occasional exceptions to this process of cost growth absorption. When viewed from the small-scale perspective of an individual weapon procurement plan, the process often appears much more erratic than the overall pattern depicted in Figure 12 or Table VII. However, taken as a whole, the Appendix substantiates this pattern as a general process. At this point, the reader is strongly urged to confirm this by taking some time to examine the year to year changes in the future costs for each weapon in the Appendix.

The stunning instability of the FYDP's five-year procurement cost projections (i.e., the instability at the individual program level) revealed by the Appendix is very disquieting when viewed from the larger perspective of overall planning. Remember, these costs are the basic building blocks of our modernization strategy. Evidently, we tolerate this instability because this situation has existed for at least the last nine annual planning cycles. Why might we (consciously or unconsciously) accept such a situation? Put another way, does acceptance of this instability serve any purpose?

Some insight to this question can be found by describing how this instability might contribute to pursuing the goal of starting up and preserving individual weapons programs. Obviously, the bias towards underestimating future costs makes it easier to get an individual program started because the total program looks cheaper during the crucial early stages when one is trying to forge a consensus on a long-term costly commitment. However, to preserve the program, a mechanism is now needed to absorb the "unplanned" cost growth made inevitable by the very underestimation bias that was helpful in getting the program started.

A process operating in the manner described in reference to Table VII could create the illusion that cost growth problems in the budget year are temporary, that we are getting well in the future and therefore that our "temporary" problems can be dealt with expediently. In other words, hard decisions such as cancellation are not necessary and a "temporary" procurement stretch (i.e., a preservation strategy) will suffice. Our resistance to this illusion might be weakened and confused by the fact that we are evidently willing to tolerate substantial changes in future cost estimates from year to year. Tolerating continual change in future costs would also make us less sensitive to the pernicious effect of the original underestimation bias. The incentive to tolerate cost instability might be built into the organizational process producing our plans. The next three paragraphs describe how this might happen.

The forging of a procurement budget is an exceedingly complex bureaucratic bargaining process involving thousands of people working on hundreds of individual five-year program plans in conditions of high pressure and tight deadlines. Most of an individual's activity is focused on micro-level program management and on the competition to obtain the resources needed to support his program. This implies an individual views the bargaining process from a very narrow perspective. Furthermore, the mechanistic deadlines and the organizational complexity of the budgeting process quite literally control a person's activity and shape his perception of events. In this situation, it is difficult to "see the forest for the trees." One factor that may contribute to the tolerance of radical future cost changes is that this bureaucratic complexity makes it difficult to see these changes in an overall perspective. This also might help explain why this instability has gone on for so long.

The large-scale cost-budget squeeze caused by the pervasive future year cost underestimation bias intensifies the resource competition at the individual program level. At the same time, the squeeze appears to the individual at the program level as an external and arbitrary "budget constraint." The often-heard rationalization that "budget constraints" caused a procurement stretch-out (i.e., a planning change which in fact increases costs further and thus magnifies the large-scale budget squeeze) bears evidence to this perception. This confusion of cause and effect creates the view that "budget constraints" are arbitrary causes of cost growth which are beyond our control, and therefore can be sanctioned by the planning process. Thus, there is at least one widely accepted source of "tolerable" cost growth. Furthermore, since the source of "budget constraints" is the underestimation bias rather than the budget level, increasing the budget does not solve the problem. "Budget constraints" are an omni-present source of "tolerable cost growth."

Finally, we must recognize that humans have a natural tendency to discount the future and that individual careers are at stake. Future problems just don't seem as important as current problems, particularly when one is fighting a high pressure budget battle in which a lifetime's investment may be at risk.

Whatever the reasons for tolerating cost instability, the simple fact is, the Appendix demonstrates that it is widespread and has gone on for at least the last nine annual planning cycles. Our collective failure to take the FYDP's future costs seriously numbs us to the pernicious effect of the underestimation bias while providing a mechanism for preserving programs through the incremental absorption of inevitable cost growth over time.

3. The consequence of the future year underestimation bias is a mismatch between planned and actual marginal costs that cripples modernization over the long-term.

Discussion: Our modernization strategy has been and continues to be a growth strategy: its fundamental characteristic is increasing production rates in the future. This strategy hinges on the interaction of two highly optimistic and, as we have seen, historically discredited assumptions: the procurement bow-wave coupled with declining unit costs. When the planned unit cost declines do not materialize, we must increase the size of the bow-wave to maintain planned production rates. More importantly, the "unexpected" increase in modernization costs now extends far beyond the five-year period of the bow-wave.

To illustrate this crucial point, we will first refer back to Figure 6. In January 1977, we predicted that the FY 1982 average incremental cost of a fighter (remember, this is an approximation of marginal or unit cost) would be $13.4 million in constant FY 1983 dollars. However, turning to Figure 11 we find that the actual cost turned out to be $27 million in constant FY 83 dollars--twice the original estimate. Furthermore, even if we achieve the new future cost declines projected in the FY 83-87 budget (i.e., Figure 11), average unit costs in FY 1987 will be $20.6 million in FY 83 dollars, which is still 54% higher than the now discredited original FY 82 estimate. This is a much more expensive state of affairs than was envisioned back in 1977 as can be seen by a comparison of these FYDPs on Figure 12.

Actual unit costs are quite rigid in the short-term because it takes six to ten years of research and development to get new equipment with fundamentally different costs ready for production. During the interim, we can reduce unit costs somewhat by increasing production rates (budgets permitting, which usually isn't the case because of the budget constraints caused by the underestimation bias) or by changing the procurement mix of existing equipment to favor lower cost items. Consequently, the future unit cost predictions, and any underestimates thereof, contained in our five year plans have implications for a longer period of time-- perhaps as much as 10 to 15 years into the future. To illustrate: the fighters in our sample that are planned for procurement in FY 87 (i.e., in the FY 83-87 FYDP: F-15, F-16, F-14, F-18, A-6, AV-8) were all projected for procurement in the FY 78-82 FYDP published in January 1977. This means that their cost estimates were made during the spring, summer and fall of 1976. These costs may have changed in part because models changed or modifications were made. Whatever the reasons for these changes, it is clear we made unit cost estimates in 1976 that had implications for FY 1987; and at that time, our projection of those implications created an unrealistic impression of the long-term costs of modernization.

The future year underestimation bias causes this mismatch between planned and actual costs. The "unexpected" increase in long term modernization costs that cripples our growth strategy is measured by comparing today's costs to the originally predicted costs. This comparison can be made for the systems in the Appendix as follows: First, recalling that the charts are analogs to learning curves, find the most recent actual unit cost by locating the point furthest to the right on the solid line. Second, from this point, draw a vertical line to the dashed line representing the earliest budget projection. In effect, the vertical line is a constant cumulative quantity line and therefore represents the same point on the so-called learning curve. The cost at the point of intersection of the vertical line and the earliest budget projection is the earliest predicted unit cost. The mismatch between planned and actual unit costs is simply the difference in these costs.

The Appendix reveals the unit cost mismatch problem is widespread, and in many cases severe. This implies actual implementation of our strategy of increasing production rates is likely to require larger budgets than planned, and these increases must be sustained far beyond the five-year planning window. It is this crippling cost pressure that threatens to undermine the long-term modernization of our forces.

4. It cannot be argued that budget cuts are the principal source of the mismatch between planned and actual unit costs.

Discussion. Many argue that the cause of cost growth has its source in reduced production rates which are caused by budget reductions. This is an extreme version of the "budget constraint" argument. The reason tactical fighters were picked for a case study is that we basically achieved or exceeded our planned budgets. Although production rates were reduced, the source of this reduction was cost growth, not budget delines. Table VIII illustrates this important point.

Table VIII
FY 78-82 Program
Predicted Versus Actual Performance

	A-10	F-15	F-16	A-6	F-14	F-18	Total
• 5-Yr Procurement Program (Total Procurement Cost-Constant 83$-Billions)							
FY 78-82 Program (Predicted)	3.8	7.4	9.8	.8	5.9	5.9	33.6
Actual	4.1	7.4	10.0	1.2	5.2	6.4	34.3
% Change	+7	-	+2	+49	-11	+10	+2
• 5-Yr Procurement Quantity							
FY 78-82 Program (Predicted)	538	325	785	39	206	231	2124
Actual	512	313	725	54	170	157	1931
% Change	-5	-4	-8	+38	-17	-32	-9
• 5-Yr Average Unit Procurement Cost (Constant 83 $-Millions)							
FY 78-82 Program (Predicted)	7.1	22.9	12.5	21.1	28.5	25.4	15.8 M
Actual	8.0	23.8	13.8	22.7	30.8	41.0	17.8
% Change	+12	+4	+11	+8	+8	+61	+12

The FY 78-82 FYDP can be viewed as the last five-year program we "completed." For the six major airplanes in our sample that were procured during this period, Table VIII compares our planned budget, quantity, and unit costs to what actually was achieved during this period. Summarizing Table VIII:

1) In terms of total budgets over the five years, in constant dollars, we spent 2% more than we planned to spend; the only program showing a decreased budget is the F-14.

2) We procured 9% fewer fighters than we planned to buy; the only case where we bought a larger quantity than planned is the A-6.

3) Without exception, the five-year average unit cost of each fighter increased.

If we go back to Figure 12, and we compare the first predicted cumulative quantity for FY 1982 (note, this was made in the FY 78-82 FYDP and includes actual FY 76 and FY 77 procurements) to the cumulative quantity actually achieved by FY 1982; we see a small (i.e., 5.8%) reduction in the cumulative quantity of fighters actually procured from 1975 = 0. A 5.8% quantity reduction simply cannot account for a 100% mismatch between planned and actual FY 1982 unit costs.

Comparing the five-year average cost growth in Table VIII to the unit cost growth in Figure 12, we see an enormous difference. The changes in unit costs reveal that the pattern of cost growth over time and current unit costs represent today's actual costs of modernization. As we have seen current unit costs are also a benchmark for the future. On the other hand, the five year average unit cost growth is merely a gross measure of performance for an extended historical period; in the context of current and future costs of modernization, it has no meaning.

Summary. Four conclusions have been reached in our analysis of the match-up of plans with reality. These are: First, our plans contain a systematic bias towards underestimating the future unit costs of our weapons. Second, predicted costs increase as a future year approaches the budget year in successive FYDPs; this mechanism for cost growth absorption is lubricated by the fact that we don't take future cost predictions very seriously--as evidenced by our tolerating dramatic fluctuations in cost profiles from year to year. Third, the underestimation bias causes a mismatch between planned and actual unit costs that creates enormous pressure (i.e., "budget constraints") to reduce procurement rates (a change that increases costs further) over the long-term. Alternatively, maintenance of our modernization strategy, which increases procurement rates in the future, requires much larger budgets than planned, and the increased requirements extend beyond the five-year planning window. Fourth, the case of tactical fighters illustrates that cost growth is a more important cause of production rate reductions than budget cuts. On the other hand, budget cuts magnify cost growth while distracting us from the more fundamental problem of the future cost underestimation bias. Taken together, these conclusions reveal that the current use of the declining cost assumption and specifically the learning curve formula, results in a pervasive mismatch between plans and reality. Examination of the initial FY 84-89 budget estimates (i.e. POM: 84-88 made only five months after the FY 83-87 FYDP) in the Appendix suggests this problem is continuing unabated.

VIII. Reasons for Non-Learning in the Real World

Bearing in mind that the charts in the Appendix are constructed in the format of a learning curve, we see the smooth declines that would be predicted by a learning curve for those FYDPs representing the early production plans for new programs--eg. the FY 76 Budget for the F-15, FY 76 Budget for the Captor Mine, The FY 79 Budget for the M-1 Tank,etc. Even in the case of ships produced in some quantity--eg. CG-47, FFG-7, the early planning profiles project large initial cost reductions followed by farily constant unit cost. We also see that these early projections generally do not materialize, that actual costs are almost without exception higher than projected costs and that actual profiles are much more unstable than the planned profiles. Most of the technical reasons for this micro-level behavior are well known, vary in detail from weapon to weapon, and have been documented in many studies. This section relates the more prominent of these reasons to the large scale pattern described in the previous section.

The Buy-In. This refers to an unrealistically low initial cost estimate made, consciously or unconsciously, for the purpose of getting a program started up. The future year underestimation bias, by reducing the predicted total long-term cost of a procurement commitment, makes it easier to forge a consensus supporting production of a new weapon. The resulting and inevitable "unplanned" cost growth is the most important contributor to the mismatch between planned and actual unit costs and is, in this author's opinion, the fundamental reason for non-learning in the real world.

If we view the buy-in from the perspective of overall planning, we can describe the general pattern as follows: Earlier procurement plans for a weapon usually assume steeper cost declines. However, once a production commitment is made and we have a few years of production experience, unit costs tend to either decrease at a slower rate than predicted or actually increase. The early plan which was helpful in promoting the program no longer resembles reality.

This pattern can be seen by examining relatively recent weapons in the Appendix with a few years of cost experience and comparing them to their pre-production cost estimates. The following weapons are good examples of this pattern: ALCM, GLCM, F-18, CH-53E, BGM-109, AGM-88A, MK-60 Captor Mine, CG-47, Patriot, Stinger, M-1, M-2/3. Now it is very difficult to prove a buy-in occurred after the fact because other causes of cost growth (discussed below) confuse the picture and mask the effect of the initial low estimate.

It is even more difficult to prove a buy-in is occurring, i.e. before the fact. In this case, the planner is forced to describe future circumstances or problems that will lead to higher costs before they are known. Moreover, this description must prevail against the cost analyst who argues that he can't quantify an unknown, against the optimism of the new technology advocate who promises the future will be different from the past, and against the formidable political/bureaucratic/economic pressures exerted by a consensus-seeking decision process that is striving to get programs going. The normal outcome of such an internal debate is to isolate the advocate of higher cost projections by maneuvering him into the position of being a pessimist, critic or obstructionist.

If we examine the new programs with one year of production or less, many exhibit strong future cost declines and are under strong advocacy pressure to start up or continue production-- eg. B-1, C-5, M-X, AGM-65D, MRASM, AMRAAM, AV-8B, SH-60, Trident II, DDG-51, AH64, Hellfire, DIVAD, etc. 1) Suppose these new weapons turn out to behave as most other weapons have behaved? For example, referring to the Appendix:

a. Suppose the B-1 behaves like the F-15 or F-14? Before rejecting this analogy, we should note: (a) The B-1 is heavier, more complex, more expensive, and embodies more advanced technology than either the F-15 or F-14. (b) A much smaller quantity of B-1's will be produced than either the F-14 or F-15. (c) Both the F-15 and F-14 were high priority, controversial, intensely advocated programs like the B-1. (d) The first 18% of the B-1's planned production quantity consumes 48% of the total planned procurement dollars--which implies a steeper future cost decline than was predicted for either the F-14 or F-15.

b. By similar analogy, suppose the AV-8B turns out to have a cost profile shaped like the profiles of the F-18 or F-16, the AMRAAM like the Sparrow or Phoenix, the MRASM like the ALCM, GLCM, or BGM-109, the DDG-51 like the CG-47, the AH-64 or SH-60 like the UH-60 or CH-53E, etc.?

2) Turning the question around, what are the concrete reasons justifying the argument that these new weapons will behave in a fundamentally different way than previous comparable weapons have behaved? If our decision process is indeed striving to start up programs, it is likely that the advocate of increased costs would have to answer questions "1a" and "1b"; on the other hand, if we were not striving towards this goal, the new weapon advocate would be required to answer question "2". The fact that the burden of proof is invariably on the "devil's advocate" is more evidence supporting the view that our system is striving to get programs started.

The IIR Maverick, or AGM-65D, provides an excellent example illustrating how stable planning cost estimates can be when a program is under intense advocacy pressure to get production started. This missile has been in the procurement budget since January 1975. However, production has been repeatedly delayed and the first actual procurement did not occur until FY 1982. Procurement has been delayed because the controversial AGM-65D has been plagued with technical and operational problems--eg. the seeker has had several major and many minor re-designs. Now it seems unlikely that a program with this kind of technical instability could exhibit the long term cost stability indicated by our plans (see Appendix) if it were actually in production. In fact, once it moved into production, the AGM-65D breached the Nunn ammendment threshold and the second draft of the FY 84-88 FYDP (i.e., the Budget Estimate Submission, September 1982) suggests the future cost profile is becoming erratic in the familiar pattern.

Continual Design Change. The smooth cost declines predicted in the pre-production plans for a new weapon--eg. the FY 83 projections for the AMRAAM, the estimates between the FY 77 and FY 80 projections for the F-18, or the FY 79 budget for the M-1--implicitly assume designs remain reasonably stable over time. There is only a small planning allowance for engineering changes. These plans to not account for the well known fact that designs for weapons in development or production are continually changing. Designs continually change for two reasons: First, to correct unforeseen deficiencies or technical problems; and second, to add new capabilities.

As equipment gets more complex, technical difficulties multiply, unpredictable problems become more frequent, and consequently designs become less stable. One measure of this instability is the ECP (Engineering Change Proposal) rate--the higher the rate, the more unstable the design. The Defense Science Board recently compiled data suggesting that ECP rates (eg. the number of ECPs per year) increase with increasing technological complexity--they found that for comparable points in time relative to production initiation, the ECP rates increased going from the F-5 to the F-16 to the F-15 to the F-111. Even after production is initiated, designs remain quite unstable--eg. there were over 500 ECPs in the second year of the F-15's production, and over 360 in the fourth year of the F-111's production (not all were accepted). Sometimes problems become so severe a major re-design (i.e., a model change) is required to meet the original requirements-- eg. the AIM 54 A to C change was in part inspired by the need to improve reliability. It should be noted that the contractor has positive incentives to submit ECPs: if accepted by the government, they loosen contract provisions such as fixed price ceilings, reliability/maintainability guarantees, etc.

We are continually adding new features to weapons while they are in production, as new technical options become available. New capabilities are often advocated as necessary responses to perceived changes in the threat. While the accuracy of threat perceptions is a subject of considerable controversy, there is no question that, as an institution, we perceive the threat to be continually changing. However, in contrast, our procurement plans for new weapons do not usually account for the tendency to change designs in response to this changing threat.

The F-16 provides a good example illustrating this problem. The early plans for over 1200 F-16s (eg. FY 79 budget) projected the F-16 A/B over the entire buy. The first 650 were to be produced under a multinational production contract with relatively stringent fixed price provisions that were taken quite seriously by the four foreign customers. These arrangements effectively constrained design changes for the first 650 F-16s, and the Appendix reveals impressive cost control during this period. However, extensive new electronics are being added to the remaining F-16s under the Multi-national Staged Improvement Program (MSIP), and costs have increased dramatically. Costs are now much higher than those predicted for comparable cumulative production quantity in the FY 79 Budget. The fact that this change reflects a conscious decision to increase costs should not distract us from the fact that the original decision to produce over 1200 F-16 was based on much lower total costs. In effect, the plans used to justify the initiation of programs make the unrealistic assumption that this tendency to add new features does not exist.

The Sparrow is a prime example of how even a known future model change is sometimes not reflected in future years of our plans until its production is imminent. The decision to develop the AIM-7M was made in December 1974--production was planned to start around 1980; however, we did not project a significant cost increase due to the model change (from AIM-7F to M) until the FY 80 Budget. As the Appendix indicates, the actual impact of the change was even greater than the projected impact.

The unrealistic assumption of design stability for new programs lowers total costs and, in this sense, is a reflection of the buy-in phenomenon. However, the inevitable design changes--in response to technical problems or newly available technical options--distract us from the buy-in problem by providing ever-changing explanations for "unplanned" cost growth.

Stretch-Outs. It is widely recognized that reduced production rates and procurement stretch-outs increase unit costs. Although it is usually argued that "budget constraints" are the source of the problem, we have seen that the real cause of the problem is increasing unit costs (the natural consequence of the future year underestimation bias) combined with our unwillingness to cancel programs (i.e., the desire to preserve programs) competing for funds. Even with the large increases in our future budget projections, future production rates are still being reduced and programs are still being stretched. For example, if we compare the common four years of the FY 83-87 FYDP to the FY 84-88 POM, which was published only five months later in May 1982, the following programs exhibit reduced production rates or procurement stretch-outs: AIM-7 Sparrow, AGM-65D IIR Maverick, AMRAAM, MC-130H, E-3A, C-140B, Tanker-Transport-Bomber Trainer, HH-60D, TR-1, M-X (note: this stretch was made prior to the Dense Pack decision), ALCM, CBU-90, AV-8B, F-14, F-18, CH-53E, SH-60B, P-3C, SH-2F, UGM-96A, Trident II missile, BGM-109, AGM-84, RIM-66C, RIM-67 A/B, Advanced Lightweight Torpedo, MK-60 Captor Mine, MK-15, MK-75, DD-963, CG-47, MCM, MSH-1, Destroyer Tender, TAO, AE, AOE, RC-12, Chapparal, Patriot, Stinger, M-1, Light Armored Squad Carrier, and the M-253 81 mm Mortar.

Even when we plan a program's termination, it is usually planned to occur in a future year rather than a budget year. Moreover, by the time the future year becomes the budget year, the termination decision is often reversed--sometimes by a different decision level, as in the case when a service-initiated cancellation is reversed by OSD, OMB or Congress. To illustrate: For our sample of fighter/attack aircraft, the FY 78-82 FYDP projected that the A-6, F-14, and A-10 would all be terminated by FY 82. FY 82 would also be the last year of production for the F-15; the F-18 and F-16 would be in high rate production in FY 82, and the AV-8B would be in its second year of production. However, by the time FY 82 arrived, no cancellations had occurred; the F-18, F-16, and AV8B were being produced at one-half to two-thirds their originally planned rates; the F-15 plans were for expanding production, although it is currently being produced at a low rate; and only the A-10 is scheduled to go out of production in FY 83.

Unplanned Changes in the Contractor's Business Base. This can be a major cause of year to year fluctuations in unit costs and it should be planned for as a normal cost of doing business. Business base fluctuations change the allocation of overhead costs to items remaining in production. In a defense industry with large management, engineering and other indirect labor staffs and relatively low, unstable rates of production, changes in production rates can lead to large changes in allocated overhead costs. To illustrate: the Navy recently considered cancelling the FY-18; if this action had been completed, the overhead costs allocated to the F-15, the AV-8B, and other McDonnell-Douglas products would have increased significantly.

Defense Industry Labor Cost Growth. Defense industry labor costs may be growing faster than general manufacturing labor costs. If this is true, this reflects a real cost (as opposed to an inflationary cost) of the non-competitive government-industry relationship. Most defense production contracts reimburse the contractor for his costs and award him some fee (or profit) for his performance. This fee may vary with the degree to which he meets target costs. Naturally, such an assurance of cost reimbursement is an incentive making the contractor less resistant to demands for wage and salary increases than he would be if he existed in a free market. Such real wage increases (in dollars per manhour) can wipe out the cost-saving effects of learning due to increased output per manhour).

Inflation. Our inability to predict future inflation leads to perturbations in our procurement plans; and undoubtedly, there is some real cost associated with adjusting to these unforeseen changes. This analysis removed the original forecasting error; however, there is no way we can compute the real cost of adjusting to instabilities caused by poor inflation estimates.

IX. COPING WITH INSTABILITY AND AMBIGUITY: THE KEY TO EFFECTIVE PLANNING

To be effective in the real world, planning must be able to effectively cope with instability. We have seen that the real world is characterized by continuous unplanned change in hardware design, production rates, procurement budgets and unit costs. Not all these instabilities can be controlled or influenced. Therefore, our plans must help, not hinder, us adapt to uncontrollable change. The inevitability of instability undermines the theoretical validity of using learning curve formulas as a generalized procurement planning tool. The empirical data contained in the Appendix removes any doubt about this point.

Overall procurement planning must also effectively deal with the inherent ambiguity of what causes cost growth. This ambiguity is caused by the simultaneous interaction of the "reasons for non-learning" described in the previous section. This interaction hides the fundamental overall problem of the "buy-in", it diffuses responsibility and blame for cost growth, and it bogs people down in endless and unproductive debate over "what" caused cost growth.

The combination of instability and ambiguity creates a pattern of change that takes on a non-deterministic character when the individual program changes are viewed from the perspective of overall planning. This is due to the circularity and simultaneity of the cause and effect relationships when viewed from the macro perspective.

Put simply, the circular relationship works as follows: cost growth in weapon "A" expands against the budget constraint to cause an individual program stretch-out and with a resulting cost increase which magnifies the general cost pressure further. The desire to preserve weapon "A" coupled with the budget constraint creates pressure to change the cost/quantity plans for weapon "B," which magnifies the cost of weapon "B," and feeds similar pressure back on weapon "A." Now, when we recognize that weapon "B" is also undergoing cost growth at the beginning of this sequence (i.e., when we look at weapons "A" and "B" simultaneously), it becomes impossible to sort out a linear chain of cause and effect events. Add to this dilemma the other reasons for "non learning" and multiply it by hundreds of programs affecting the interacting (often conflicting) ambitions of thousands of goal-seeking program advocates, and we get an idea of the complexity inherent in this fundamentally organic interaction.

As we have seen, raising the budget only elevates this same game to a higher budget level--witness that the ever present problem of program stretch-outs currently taking place. Now it is clear that even if the causes of all the individual program changes were deterministic, they could not be sorted out in a collective sense; certainly it would be impossible to do this in a timely enough fashion to have practical utility to a planner. Consequently, our five year plans must explicitly consider the effects of non-deterministic change if they are to be effective in coping with the challenges of the real world.

X. CONCLUSIONS AND RECOMMENDATIONS

Planning is useful if and only if it improves current decisions by providing a realistic picture of the future consequences of these decisions. Although an enormous effort goes into defense planning, it appears that the Planning, Programming, and Budgeting System (PPBS) has evolved to a point where very little overall planning is actually taking place. Senior officials now spend most of their time trying to make micro-level decisions: Should we trade F-15s for F-16s? What production rate is feasible for the M-1 Tank? How should we base the M-X? An examination of the Issue Books presented to the Defense Resources Board (DRB), or its equivalent, over the last five years confirms the overwhelming emphasis given to micro-level decision-making. In effect, the process of constructing five year plans has been reduced to aggregating the "bits and pieces" of small-scale decisions in accordance with the blunt discipline of an overall budget constraint. This excessive focus on the micro-level distracts attention away from the overall problem of shaping the "bits and pieces" into a coherent "whole." As a result, our plans exhibit serious structural flaws--eg.

the bow-wave, the future year underestimation bias, etc.--and they do not provide a realistic picture of the future consequences of current decisions. Indeed, as we have seen, there is a strong possibility that the actual consequences will be opposite to the desired consequences--i.e., we will continue the pattern of low readiness, slower modernization, and shrinking forces.

We need to establish the primacy of the overall perspective in decision-making. Our planning and decisions should actively shape the "bits and pieces" according to the dictates of overall coherence. This means first, and most importantly, we must squarely face and overcome the plans/reality mismatch. Moreover, if we are going to effectively deal with the uncertain constraints and opportunities of the real world, overall planning should explicitly evolve a strategy for coping with the non-deterministic character of destabilizing change. Decisions and plans must recognize that the world may not behave the way we want it to behave. In other words, overall planning should embody hedging strategies for dealing with the real world effects of non-quantifiable uncertainty.

To meet this challenge, we must overcome a natural tendency towards ambivalence and procrastination caused by the complexity and magnitude of the mismatch. Ambivalence, which is a mental state characterized by opposing or contradictory impressions of events, derives from the non-deterministic character of the problem. In the past, this has resulted in competing and contradictory solutions, and has invited delay in dealing with the enormous consequences of the mismatch.

These considerations suggest we need a bold, highly visible set of actions that forcefully and directly attack the plans/reality mismatch.

Recommendation #1: Re-Price the Procurement Budget

The pervasive future year underestimation bias is the most important structural problem contributing to the plans/reality mismatch. A major policy initiative to more realistically estimate costs in the four future years of the FYDP would signify a real commitment to attack the problem. This repricing action could be accomplished within the context of one of four planning strategies. These are:

1. Finance the re-pricing by increasing the assumed future year growth rate in the total DoD budget--the entire increase being devoted to funding the realistically priced procurement bow-wave.

2. Finance the re-pricing by reducing planned growth in the readiness budget and by using the "savings" to increase growth in the procurement bow-wave. The readiness budget can be reduced by decreasing readiness and/or shrinking the force.

3. Hold the future procurement budgets to levels now planned and finance the re-pricing by slowing production rates--i.e., accept real growth in unit costs (in addition to repricing

effects) and buy a smaller number of units, thus delaying modernization and ultimately shrinking the force.

4. Hold the future procurement budgets to levels now planned and finance the re-pricing by cancelling enough programs to free up funds for high rate, efficient, procurement of the remaining programs.

Bear in mind that all of these strategies are highly optimistic in the sense that each assumes it will be possible to at least implement the large dollar increases in the procurement account that are assumed in the current five year plan. If the past is prologue and these increases are not appropriated by Congress, the above choices become much more brutal. Moreover, given the accelerating build-up of procurement outlays--and the concommitant growth in the constituencies pressing to continue these outlays--the longer we delay action, the more limited our future maneuvering room becomes. It is urgent that a commitment to re-pricing be made as soon as possible.

When evaluating a re-pricing strategy, we need a goal other than starting up and preserving individual procurement programs. Instead our decision-process needs to strive towards the overall, national goal of increasing readiness, speeding up modernization, and growing the force size. This goal rules out strategies 2) and 3). Strategy 1) is clearly the preferred option. However, in view of our current economic problems, we may be forced to confront the hard choices posed in strategy 4). Moreover we should recognize and start planning against the contingency that the cancellations of strategy 4) may become more severe if it becomes necessary to use procurement funds to finance emerging budget problems in the readiness accounts, or if Congress does not appropriate the planned increases in the Defense budget.

The most frequent argument raised against this re-pricing recommendation is known as the "Self-Fulfilling Prophecy Argument." It proceeds as follows: If we increase the cost predictions in the out-years, costs will automatically rise to the new levels--i.e. we are creating a self-fulfilling prophecy. Now, we have seen that projections of declining costs have not reduced costs to desired levels. Apparently the prophecy only works in one direction--UP! By implication, re-pricing at higher levels may encourage suppliers to exercise their monopolistic power to increase costs even further--a conclusion which raises an important question: How do we enforce cost discipline? Obviously, we discipline by rewarding success and punishing failure. Put another way, the very existence of the self-fulfilling prophecy argument suggests we reward failure and ignore success--an insight revealing the need for overall defense decisions that discipline the activities of the "parts" according to the interests of a coherent "whole."

Recommendation #2: Establish a Macro Level Planning Activity

Re-pricing will not work over the long term unless we replace the narrow short-term micro perspective with a broad long-term planning perspective. When we recognize the FYDP is the authoritative statement of defense policy--i.e., because it is the only document detailing all the hard decisions affecting the flow of resources--it becomes clear that the primacy of the micro perspective in the process shaping the FYDP means the concerns of the "parts" are determining priorities and policy for the "whole." Macro planning is intended to reverse this situation and permit leadership to gain and exercise the initiative in the shaping of defense policy.[4/]

The need to re-price the procurement budget implies some very nasty decisions may be in the offing--particularly if readiness or total budget level problems continue over the next five to ten years. The macro planning proposal, described below, is intended to provide the information needed to come to grips with this problem in a coherent way that both meets the threat and is fiscally pragmatic over the long term. This proposal is specifically designed to provide the information necessary to deal with the non-deterministic character of destabilizing change.

Sun Tzu's ancient aphorism--"Know the enemy and know yourself"--and the context in which it was written, provides deep insight into the nature of the information needed to implement effective macro planning. We need to combine accurate knowledge of our enemy--his strengths, weaknesses, opportunities and constraints--with similar accurate knowledge of ourselves. The aphorism and the context in which it was used stress the notion "know." A decision process which sacrifices or ignores some aspects of this knowledge can lead to weakness and defeat. For example, while we are all aware of the obvious penalties for underestimating the threat, we seem much less sensitized to the weakness that can result from exaggerating the threat, particularly if this is combined with an unrealistic assessment of ourselves. Threat exaggeration can trigger an exaggerated response requiring politically unsupportable total budgets, or causing an incorrect internal allocation of resources--such as reducing current readiness to relieve procurement budgeting problems. Most importantly, we might procure the wrong technology or train the wrong way, our leaders could be intimidated and our troops demoralized by exaggerated fears. (We note in passing that a decision process striving to get programs started might be susceptible to threat exaggeration since this would help generate a consensus to start new programs.)

Knowing the enemy and knowing yourself suggests two steps to macro planning: (1) Identifying alternatives that address the threat--by understanding his weaknesses, strengths, opportunities and constraints, and by understanding our opportunities; and (2) chosing sets of alternatives that are consistent with step "1" and an understanding of our constraints. The macro planner's role is to provide decision-makers with an objective understanding of these alternatives and constraints in the form of macro planning options. Decision-makers can then combine this information with their experience and judgment (i.e., their subjective knowledge) and select from among the options. The chosen set of options becomes the overall policy guidance harmonizing the aggregation of individual program plans into a coherent defense budget plan that

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[4/] The macro planning proposal described in this section is an extension of an Air Force plan proposed by Col. John Boyd, Col. James Burton, Major Raymond Leopold, and this author in 1974.

embodies consistent hedging strategies to cope with unpredictable change. In this sense, macro planning can be viewed as the process used to determine priorities and shape policy. The production of these macro planning options is now summarized.

The Identification of Alternatives

The first step in macro planning consists of an analysis of the threat and an analysis of our opportunities for defeating or neutralizing the threat. This step can be viewed analytically as a set of sub-steps:

1. Threat analysis: the objective is to understand the strengths, weaknesses, opportunities and constraints of our adversaries in the context of each potential adversary's state of readiness, modernization, and probable political goals.

2. Identification of the combat tasks required to defeat or neutralize the threat.

3. The matching of operational capability packages and modernization options to the combat tasks.

4. Identification of deficiencies and continuing limitations.

An alternative is defined as a costed-out operational capability package or modernization option matched to a combat task. Costs should be projected for an extended period (eg. 10 years) under differing assumptions. Alternatives are the basic building blocks of macro planning.

An operational capability package is defined as an operational unit (combat or support) at a specified state of combat readiness--eg., a fighter squadron, a maneuver battalion, a field hospital, a communications squadron, etc. A modernization option is a weapon or support system in the procurement budget. Each package or option may be capable of performing a number of different combat tasks; conversely, a single combat task may be accomplished by several packages or options--each possibly with varying degrees of effectiveness. The match-up of tasks with packages and options would, therefore, not be constrained by bureaucratic boundaries imposed by conventionally accepted roles and missions. A current deficiency occurs when no available operational capability package adequately performs the combat task; but there exists at least one package in operational development and/or modernization option to remove the deficiency. A modernization deficiency exists when a current deficiency can not be eliminated by an existing modernization option but a promising R & D program exists. A continuing limitation is a deficiency which is not being resolved by an ongoing R & D program.

It is imperative that combat tasks, not operational capability packages or modernization options, be linked to the threat. The tasks provide the guidelines for judging quality of the packages and options. In this sense, the tasks describe the ends whereas the packages and options provide the means for achieving those ends. Consequently, for the tasks to be of use in macro planning, they must be described in a manner easily related to operational capability packages and modernization options.

By and large the identification of alternatives is a micro level activity. However, there is a macro-level aspect to the analysis of the threat and the understanding of the combat tasks. These micro analyses should be performed within the context of a generally accepted unifying frame of reference describing the nature of conflict and the conduct of war. Such a unifying theme is needed to provide common context and continuity when the focus of planning shifts from the micro to the macro level and vice versa. Without this unifying theme, the aggregation of alternatives into planning options would be reduced to a more efficient budgeting activity--i.e., we might know the economic part of ourselves better.

The Production of Macro Planning Options

A macro planning option is a specific aggregation of alternatives; one could think of it as a rough estimate of the entire DoD program. One challenge facing macro planners will be to develop a means to reduce detail and complexity to a digestible level while retaining (1) the essential features of the force represented by the planning option; and (2) the flexibility to manipulate and understand the planning option's contents on short notice. The trade-off between detail and digestibility or flexibility will have to be evolved during implementation phase; undoubtedly it will require the creative use of modern data-processing capabilities.

To be effective, macro planning options must adequately address the threat and they must realistically conform to the constraints that limit us. The principal constraint affecting DoD's desires is a limited budget. Moreover, we know from experience that the budget cannot be predicted with certainty, and that it can fluctuate sharply from year to year. However, it is possible to estimate the range of likely budgets. This suggests that macro planning options should be produced for different budget levels so we can determine the impact of the budget uncertainty on current decisions.

The threat, particularly the future threat, is also very uncertain, and the virtual certainty of a restrictive budget (whatever its level) means that we will have to attach priorities to the combat tasks. This is a fundamental policy decision related to the conflicts that arise from the pursuit of our national goal. Obviously these conflicts can change with the ever changing circumstances of evolving human experience; and therefore, a rigid prioritization of the combat tasks is not realistic and probably not possible. This threat uncertainty suggests that macro planning options ought to be produced for different prioritizations of the combat tasks.

Taken together, these thoughts suggest that a matrix of planning options, generated by varying budget levels and prioritizations of the combat tasks, can be used to systematically analyze the consequences of the uncertainties facing decision-makers. To illustrate this idea, imagine three budget levels (eg., high, most likely, low) and three systematic variations in the prioritizations of the combat tasks resulting in a matrix of nine macro planning options, each projected over a period of 10 years. These would be presented to decision-makers with an explanation of how they differ. The decision-makers then subjectively evaluate the nine options and they can chose to either adopt one of the high budget level options (with its two consistent fall-back options) or direct the planners to generate additional options with some new guidance. Once a preferred prioritization of the combat tasks is determined, multiple options (for many other budget levels) can be generated so the consequences of short-term deviations in the expected budget or costs can be handled with a proper appreciation for the out-year impacts.

The selected set of options then becomes the macro level guidance, containing consciously determined readiness, modernization, and R & D strategies. This guidance would be used to harmonize the aggregation of the detailed individual program plans into a coherent overall defense budget plan.

The Unifying Theme of the Nature of Conflict and the Conduct of War

The unifying theme is crucial to ensure that macro planning is more than an improvement in budgeting efficiency. The unifying theme is necessary because it provides a common context for transferring information back and forth between the micro and macro levels. One can think of it as the common language used to understand the threat, identify and describe the combat tasks, understand deficiencies, and to attach direction and meaning to the prioritization of the combat tasks--i.e., to understand policy. In short, it is essential to understanding the quality and effectiveness of the forces contained in our plans. Therefore, an essential part of macro planning is the continuous development and refinement of the unifying theme. We are fortunate that there is at least one path breaking effort in this difficult subject currently ongoing in the Pentagon that has been developed to a point where it can be used to guide the implementation of macro planning. This theory, and the analysis supporting the synthesis, is contained in two briefings by Colonel John R. Boyd, USAF (Ret.); Patterns of Conflict and Organic Design for Command and Control. Once a decision is made to implement macro planning, Boyd's theory and other alternative theories should be compared, and the most appropriate one chosen to support the implementation of macro planning.

Implementation of Macro Planning

Macro planning should not be viewed as a top-down management concept; rather, it should be viewed as a tool to improve information at all levels by providing an organic capability to easily shift perspective from the "whole" to the "parts" and vice versa. The intent is to provide a coherent overall, long-term perspective to short-term micro level activities; the idea is to establish a harmonious blend of individual perspectives at all organizational levels. If correctly done, this will permit true decentralization, enabling the exercise of creativity and initiative in micro activities to take place within a coherent overall framework.

These thoughts suggest that OSD should have a macro planning activity and each of the services should have a macro planning activity. While the organizational structure could be similar, the level of detail handled by OSD and the services could very well differ--for example, it may be appropriate to define the combat tasks more precisely at the service level than the OSD level. This remains to be worked out, and it should be viewed as an evolving process.

The macro planners should be a small group of carefully chosen, highly motivated individuals that have exhibited the initiative, flair, and courage to attack macro problems. This paper will direct its remaining recommendations to the OSD staff; however, at this point it should be noted that this author believes similar proposals (tailored to and determined by each service) would enhance the information flow within the services and between the services and OSD.

A small macro planning office, consisting of no more than twenty people, should be attached directly to the Secretary and Deputy Secretary of Defense. The Assistant for Macro Planning should be a high ranking career civil servant with an impeccable reputation for moral integrity, personal strength and drive. It is absolutely essential that he be perceived by the entire bureaucracy as an individual who is not pursuing a narrow agenda. It is for this reason than an apolitical career status is important. In addition, we might consider giving this individual a fixed term appointment--say six years. The mission of the Assistant for Macro Planning is to lay out policy options and to ensure that the five-year program conforms to policy decisions. In this sense, he is not a policy-maker; his mission is to make certain his boss, the Secretary of Defense, is. He must have the authority to obtain the information he needs.

Once the Assistant for Macro Planning has been selected, and his initial cadre of personnel chosen, they should lay out an appropriate plan to phase in the macro planning process. This effort should also include the active participation of the various OSD staff elements. We should recognize that it will be easier to phase in certain features of macro planning than others--for example, accounting for budget and cost uncertainties is relatively straight-forward and can be initiated in reasonably short order. On the other hand, developing and using the unified theme is a much more subtle, time consuming effort. It will take time to fully implement macro planning; however, if a go-ahead is given within the next month and the resources allocated, it might be possible to start providing constructive macro level budget and cost information by late summer or the fall of 1983.

Changing the PPBS

In this author's opinion--i.e., based on the analysis documented in Defense Facts of Life and this paper, the PPBS has become so complex, cumbersome and burdened by the micro perspective that major surgery is required. For the non-believer, consider our current situation: We do not yet have an FY 83 defense appropriation to support our FY 83-87 budget plan; the FY 84-88 budget plan is in the final stages of assembly for submission to Congress in January; the Defense Guidance for the FY 85-89 budget plan was published this month; the major command levels of the services have been working on their FY 85-89 POM submission requests since late summer, even though the POM is supposed to respond to the Defense Guidance. How can we rationally respond to changing conditions in this planning blizzard? The answer is, we can't; we simply adjust as best we can to change on an ad hoc piecemeal basis--this confusion provides an environment that naturally encourages the distorting micro perspective, regardless of our best intentions.

Macro planning provides a means to rationalize the PPBS. We need to shorten our decision cycle and become more responsive to changing conditions. As stated earlier, the selected set of planning options provides macro guidance that can be used to harmonize the individual programs. After the set of options has been selected, programming and budgeting attaches flesh to the skeleton. When we consider that many things cannot be significantly changed in the short-term, the task of putting together a FYDP becomes even easier-- an initial draft and a final version could probably be done in three months, given an agreed-on set of planning options. In the end, if meeting the deadline becomes difficult, the Secretary of Defense has the authority, and in this case would also have the information, to settle any lingering disagreements.

Elimination of the PPBS will not have a drastic effect on our current five-year plans; because as we have seen, our analysis of the PPBS's own historical FYDP data confirms the widely held view that the four future years have very little meaning. There is little risk in trying something different, and there are enormous potential benefits. The Assistant for Macro Planning should include in his implementation plan a proposal for transforming the resource related activities of the PPBS into a 12-month planning cycle (instead of the current 15 month cycle) centered on using the macro planning concept to reduce and eliminate paperwork and streamline planning activities in the January to October time frame.

Re-Organizing OSD

The only necessary organizational change required to implement the macro planning concept is the creating of the function of the Assistant for Macro Planning. However, other organizational changes would make it easier to balance the micro perspective with the macro perspective in our activities. This section describes how this might be done.

Our decision process should naturally strive to increase the readiness, speed up the modernization, and increase the size of our forces. Moreover, we must do this in an environment of uncertain resource constraints. That is to say, we do not want the pursuit of this goal to be contingent on ever increasing budgets. However nice this situation might be--and it certainly makes planning easier--the assumption of smooth ever-increasing budgets simply is not realistic. Therefore, pursuit of this goal over the long term in the real world implies our decision process should have an incentive to produce lower cost, more effective weapons. (The pocket calculator is a classic example of using technology this way in the civil sector.) The strawman reorganization described below is designed with this thought in mind.

OSD could be re-organized to include four Assistant Secretaries: the Assistant Secretary for Force Readiness and Development (ASD/FR&D), the Assistant Secretary for Resources (ASD/R), the Assistant Secretary for Budgeting and Evaluation (ASD/B&E), and the Assistant Secretary for Policy (ASD/P).

The principal Assistant Secretary of Defense would be the ASD/FR&D. The ASD/FR&D would be a senior active duty four star general in his final assignment. In rank he would be second to the Chairman of the JCS. His principal function would be to ensure that our forces are maintained in a high state of operational readiness--defined broadly in terms of the development of military thought, the training of our people, and our materiel readiness. In this capacity, he would work closely with the JCS to ensure that the moral, mental, and physical development of our forces match the assumptions underlying the JCS war plans. The basic premise justifying this position is that our top priority is to provide the United States with combat ready military forces.

Relating specifically to macro planning, the ASD/FR&D would be responsible for the identification and maintenance of the combat tasks, and the construction, maintenance and micro analysis of the operational capability packages and the modernization options. Included in the ASD/FR&D would be an important new organization responsible for the study of military history, the nature of conflict, and the development of a unifying body of knowledge to guide our nation's preparation for, and conduct of, war.

The ASD/R would be responsible for ensuring that the human and materiel resources are properly developed, procured and supported. The ASD/R would absorb much of the activities currently performed by USDR&E and ASD/MRA&L. Regarding macro planning, the ASD/R would support the ASD/FR&D by providing the resource-related information needed to construct the operational capability packages and the modernization options. The micro and macro analyses of deficiencies, and the determination of priorities performed by the ASD/FR&D and the Assistant for Macro Planning, would be used by the ASD/R to guide human and materiel resource planning.

The ASD/P would absorb the responsibilities of the Undersecretary for Policy. The macro planning process changes the procedure for the Defense Guidance formulation, but the basic role of ASD/P would remain the same. Regarding macro planning, the ASD/P would be responsible for providing the threat analysis to the ASD/FR&D and the Assistant for Macro Planning.

The ASD/B&E would absorb the activities of the Comptroller, DPA&E and the Operational Test and Evaluation (OT&E) function of the Director of Test and Evaluation. ASD/B&E would be responsible for transforming the selected set of macro planning options into a detailed Five Year Defense

Plan. The current accounting scheme is adequate for this task and its continued use would provide continuity. The ASD/B&E would also be responsible for independent cost and effectiveness analyses of the operational capability packages and the modernization options. The independent OT&E activity is crucial to this arrangement. It provides the most objective peacetime information on a weapon's or unit's actual performance. Therefore, OT&E results will take precedence in the individual analyses of the operational capability packages and the modernization options.

The remainder of the OSD organizational structure--i.e., ASD/Health Affairs, ASD/Legislative Affairs, ASD/Public Affairs, General Council, Assistant for Review and Oversight, and the Defense Advisor US Mission NATO--would remain unchanged.

This reorganization is designed to maintain and improve the micro perspective while providing an organic capability to quickly and flexibly shift to the macro perspective and vice versa. In contrast to our current planning system, which assumes our priorities--i.e., the hard choices--are known in advance, the macro planning concept is specifically designed to search for and to reveal our priorities. The process of selecting a set of macro planning options reveals our priorities by surfacing the opportunity costs of decisions. For example, given a planning option with a specified budget level and prioritization of the combat tasks, the addition of another operational capability package or modernization option forces us to delete some other package or option. The opportunity cost of the addition is measured by the lost capabilities of the deletion. The systematic examination of different budget levels and prioritizations of the combat tasks reveals the array of opportunity costs in terms of the hard choices that must be made in an uncertain real world. The selected set of planning options can be viewed as the array of least painful hard choices.

This reorganization recognizes that the organizational components of the Department of Defense naturally see things differently, and often have different priorities. The macro planning concept provides a mechanism for a continuous dialogue that converges to a common set of decisions--the selected set of macro planning options. Moreover, the elevation and integration of the military voice in OSD should strengthen the bonds of cooperation and mutual trust among the civilian and military leadership, and should increase the harmony between the JCS's operational plans and OSD's budget plans.

This reorganization abolishes one institutional incentive to weapon cost growth--i.e., the fixed force structure planning assumption of the PPBS. Under the macro planning concept, the services would be free to propose the size and shape of their force structure as long as their decisions conform to the various budget constraints and prioritizations of the combat tasks used in the process of selecting a set of planning options.

This reorganization also embodies various checks and balances that should stimulate and sharpen the dialogue needed to converge on a harmonious set of decisions. For example, the Assistant for Macro Planning is balanced by the increased power of the ASD/FR&D. The independent micro analyses and operational testing conducted by ASD/B&E would balance the micro analyses done by ASD/FR&D. The responsibility for program advocacy (i.e., ASD/FR&D) would be separated from the responsibility for development and acquisition (ASD/R), and each of these functions would be separated from the responsibility for operational testing and evaluation.

APPENDIX

The individual program data contained in this Appendix is constructed in accordance with the technique used to construct Figure 12. The individual charts were generated by computer graphics, and they differ from Figure 12 slightly: 1) they use a different coding and 2) the individual years making up each five-year program are not labeled. The new coding for each five year program is explained at the bottom of each chart.

A few points regarding the interpretation of these charts should be noted. First, the scale on the vertical axis was determined by the largest cost contained in the entire data base for a given system. A large cost representing a proposed line termination (eg. the FY 84 POM for the P-3, see page N-11) or high start-up costs (eg. the FY 80 Budget for the Divad, see page A-18) can mask significant cost changes in the other costs. This scale effect should be kept in mind when reviewing the data. Second, some programs (eg. the A-7k, see page AF-5) were appropriated by Congress even though they were not contained in DoD's five-year program. These programs are depicted in the Appendix by the "Actual Procurement" code. Third, it is this author's understanding that the FY 81 shipbuilding program contained a computational error (that was subsequently corrected) in the published FYDP. The charts reveal that the FY 81 program data for shipbuilding is abnormally low. This data should be ignored. Fourth, when examining this data, the reader should always distinguish those programs for which we have several years of actual procurement experience from those programs with little actual procurement experience. Programs with little or no procurement experience can appear stable because the same planning forecasts are used year after year. Once procurement starts, the forecasts often become much more unstable.

Errata

There may be a minor computational error in the shipbuilding and conversion (SCN) charts of the Appendix (Re: N-36 to N-54). The accounting system for shipbuilding aggregates costs as follows:

+ (Weapon System Cost)
- (Prior Year Advanced Procurement)
+ (Current Year Advanced Procurement)
+ (Outfitting)
+ (Post Delivery)
+ (Cost Growth)
+ (Escalation on Prior Year Programs)

(Procurement Cost)
(Anticipated Escalation) - i.e. The "set-aside" for forecasted inflation

The calculation used to remove the effects of the inflation forecast (i.e. Assumption 1--the subtraction of "Anticipated Escalation" from "Procurement Cost") assumed the "Anticipated Escalation" quantity included the inflation forecast's effects on: Outfitting, Post Delivery, Cost Growth, and Escalation on Prior Year Programs. This may be incorrect; and if so, the "Anticipated Escalation" quantity is slightly underestimated in the calculation. If we calculate inflation's effects on each of these four categories and add these to "Anticipated Escalation" (Assumption 2), we geta slightly lower "Procurement Cost"--particularly in the budget year. The table below calculates the error in the budget year (i.e. FY83) for the FY83-87 FYDP, if Assumption 2 is true. Since the outyear calculations are even less affected (because Cost Growth and Escalation on Prior Year Programs are incrementally funded, see pp 17-18), it is clear that this error, if it exists, has no effect on the analysis or its conclusions.

SHIPBUILDING & CONVERSION

EFFECT OF POSSIBLE ERROR IN "ANTICIPATED ESCALATION" ASSUMPTION

FY83-87 FYDP: FY83 Procurement Unit Costs (-Const 83$-Millions)

	Trident SSBN	SSN-688	CG-47	FFG 7
Assumption 1	1121.6	720.4	843.7	307.9
Assumption 2	1095.9	691.6	842.0	299.5
% Overestimate in Budget Year If Assumption 2 is true	2.3%	4.2%	0.2%	2.8%

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 1984

MONDAY, FEBRUARY 28, 1983

U.S. SENATE,
ARMED SERVICES COMMITTEE,
Washington, D.C.

AIR FORCE PROGRAMS

The committee met, pursuant to notice, at 10:10 a.m., in room 6226, Dirksen Senate Office Building, Senator John Tower, chairman, presiding.

Present: Senators Tower, Thurmond, Goldwater, Warner, Humphrey, Cohen, Jackson, Stennis, Levin, Kennedy, and Bingaman.

Staff present: James F. McGovern, staff director and chief counsel; James G. Roche, minority staff director; Alan R. Yuspeh, general counsel; Paul C. Besozzi, minority counsel; Brenda K. Hudson, assistant chief clerk; Willis D. Smith, deputy staff director, chief scientist for the minority; Michael B. Donley, Robert S. Dotson, George K. Johnson, Jr., David S. Lyles, Patrick L. Renehan, Carl M. Smith, and Joe Mayer, professional staff members; Judith A. Freedman, research assistant; and Jacquie S. O'Grady, staff assistant.

Also present: Dennis P. Sharon, assistant to Senator Goldwater; John Campbell, assistant to Senator Warner; Ron Kelly, assistant to Senator Humphrey; Jim Dykstra, assistant to Senator Cohen; Hank Steenstra, assistant to Senator Quayle; Cindy Taylor, assistant to Senator Levin; Mary Shields, assistant to Senator Stennis; Arnold Punaro, assistant to Senator Nunn; Frank Sullivan, assistant to Senator Stennis; Greg Pallas, assistant to Senator Exon; Matthew Murray, assistant to Senator Kennedy; Kathleen Callahan and Ed McGaffigan, assistants to Senator Bingaman.

OPENING STATEMENT BY SENATOR JOHN TOWER, CHAIRMAN

Chairman TOWER. The committee will come to order.

The committee meets this morning to receive testimony on the fiscal year 1984 Air Force budget. We are pleased to have with us Hon. Vernon Orr, the Secretary of the Air Force, and Gen. Charles A. Gabriel, Chief of Staff of the U.S. Air Force.

In addition, we are very fortunate to have before us the commanders of the Air Force Military Airlift Command, Tactical Air Command, and Strategic Air Command. We welcome Gen. James R. Allen (MAC), Gen. Wilbur L. Creech (TAC), and Gen. Bennie L. Davis (SAC).

This is the first year in which operational commanders from field components have been asked to appear along with the Secretary and Chief of Staff. We hope that their presence here will help members get information about the day-to-day operations of major Air Force components, and to understand any effects on Air Force operations which adjustments to the President's budget would cause.

Gentlemen, it is a genuine pleasure to have you with us this morning and we look forward to hearing from you.

Members of the Senate Budget Committee have been invited to participate in this morning's hearing. The Budget Committee will soon be meeting to establish the initial budgetary goals for defense in fiscal year 1984.

We felt it would be beneficial for Budget Committee members to hear directly from those whose ability to carry out national commitments will be most affected by any significant adjustments in the defense budget.

The major issues confronting the Air Force today are familiar to all of us. Most of these issues have been thoroughly previewed for us in the national press so no one should be coming here unprepared.

The issues associated with strategic force modernization continue to dominate the fiscal year 1984 Air Force agenda. Decisions regarding the best means of replacing increasingly obsolete components of our strategic Triad are of enormous military importance as well as budgetary consequence.

I am certain that many of my colleagues will have questions concerning the MX missile. However, since the report of the President's Commission on Strategic Forces assessing the various MX basing proposals has not been submitted, I would respectfully ask my colleagues to consider withholding those questions at this time. Once the required documents are available, along with the President's decision, we will conduct subsequent hearings in which such questions may be properly discussed.

Also, I anticipate that interest may be expressed in exploring the administration's plans for air-launched cruise missiles or an advanced technology bomber. As most matters relevant to these issues are highly classified, I want to assure members that an opportunity will be provided to pursue them fully in a closed session.

Turning to less sensitive matters, I expect the administration's efforts to modernize our tactical air forces will be of interest to members. This is one of the areas in which the United States has maintained a qualitative advantage over the Soviets, and since these forces represent an essential element of our front line of defense, it is imperative that we retain that advantage.

We are also interested in the plans to modernize and expand our Nation's airlift forces. There was some comment made on this when the Army testified before us last Friday. They have, obviously, somewhat more than casual interest in this issue.

The growing capability of the Soviet Union to project its influence through direct military intervention, as in Afghanistan, or through its surrogates, such as South Yemen and Angola, requires that we be prepared to respond in a timely manner whenever and wherever our national interests are threatened.

There are other issues dealing with personnel and readiness, which are also of vital importance to this committee. We are grateful for this opportunity to learn more about them.

I see that Senator Jackson has not arrived yet. He is detained at the White House at a meeting that we were all requested to attend.

I will ask Senator Stennis if he would like to perform the role of ranking member, which he does so well, and make a comment.

Senator **Stennis**. Thank you, Mr. Chairman, I will pass that up.

Chairman **Tower**. Mr. Secretary, you may proceed as you see fit.

All prepared statements will be entered in full in the record. Therefore, you may summarize your statement and we encourage you to do that in the interest of time so that we can give most of our time to questions and answers.

I don't know whether you want all of the gentlemen at the desk to make a presentation. If not, we will consider them available for questions. In any case, we will hear from you at this point. You may proceed as you see fit.

STATEMENT OF HON. VERNE ORR, SECRETARY OF THE AIR FORCE, ACCOMPANIED BY GEN. CHARLES A. GABRIEL, USAF, CHIEF OF STAFF, U.S. AIR FORCE; GEN. JAMES R. ALLEN, USAF, COMMANDER, MILITARY AIRLIFT COMMAND; GEN. WILBUR L. CREECH, USAF, COMMANDER, TACTICAL AIR COMMAND; AND GEN. BENNIE L. DAVIS, USAF, COMMANDER, STRATEGIC AIR COMMAND

Secretary **Orr**. Thank you, Mr. Chairman.

The Chief and I will make preliminary statements. Anyone else at the table will be available to answer your questions. Both the Chief and I will keep our remarks very brief because we recognize the primary purpose of this meeting is to ask the questions which concern you.

I am pleased to be here with Charles Gabriel, Chief of Staff. This is the first time I have had the opportunity to meet with this committee with General Gabriel sitting beside me. One year ago he was head of the U.S. Air Force in Europe.

RETENTION RATE GOOD

Our personnel situation is very good. Our first-term reenlistment rate is 57 percent. Our second-term reenlistment rate is 81 percent. Our career reenlistment rate is 95 percent. Our officers are staying longer.

We are not losing pilots in the 6- to 11-year group as we did some years ago. We think in part this is due to the fact that pay has remarkably improved in the past 2 or 3 years.

In part it obviously is due to the fact that there is a recession and jobs are not available for some people who would otherwise seek them, but possibly the greatest attribute of all is the new role in which people in the military now are looked upon by the U.S. public.

Fifteen years ago many members of the military did not wish to wear their uniforms when off duty. Now it is a matter of pride to wear the uniform. For that we owe a vote of thanks to all the people in the country.

I would like to speak briefly of the place of our Reserves. We think we have possibly the most outstanding Reserve Forces in the military. They play a very vital role with us. We operate on the total force concept. Our Reserves provide 50 percent of the aircrews for strategic airlift and 60 percent of tactical airlift capability.

They provide two-thirds of all air defense interceptor missions in this country. Charles Gabriel will have more to say on that.

I would like to say that we all are disappointed that there was no pay raise requested this year. I am sure that was an extremely difficult decision for the President. We are working very hard to implement it with the minimum of impact, and I think we are doing so in view of the fact that it is a sacrifice to be made by all members of the Government, not just one group, the military.

Our people are quite nervous, however, about comments that come out from time to time about changes in their retirement. I think that is more unsettling to members of the military than the 1-year pay freeze has been.

We are trying very hard to do a better job in procurement. Recently, I authorized a study called the affordable acquisition approach (A^3) to determine whether costs had gone up or not, to determine, if they did, why they had gone up. We are taking steps after receiving the study to make the necessary decisions and actions to keep costs from going up in the future. To help correct this, Congress has helped us materially by permitting us to do multiyear funding.

We are reducing somewhat the almost never-ending reviews within the Pentagon that have delayed programs and stretched them out. We are using better cost estimates and making much wider use of independent cost estimates. We are doing much more competitive bidding. We are buying our reorders not from the prime manufacturer, but from the subcontractors.

In one instance of an engine manufacturer from whom we bought 4,000 parts directly 1 year ago, today we only buy 400. The other 90 percent we buy directly from the subcontractor that made the part in the first place.

In this budget we bring you no new starts. We are tying for stability—only the programs we have had. And we are trying very hard to make sure as part of our procurement procedure that we maintain stability in those.

I would like to thank the committee for their tremendous help over the past years in improving both our readiness and our modernization. We are so much better off than we were only 2 years ago.

Parts that were put in the earlier budgets are now reaching our forces. Flying hours have increased, our readiness is enhanced very greatly. For that we owe a very great debt of gratitude to this committee.

I would like to ask General Gabriel to add any remarks he wishes.

STATEMENT OF GEN. CHARLES A. GABRIEL, USAF, CHIEF OF STAFF, U.S. AIR FORCE

General GABRIEL. Mr. Chairman and members of the committee, it is a real pleasure to be with you this morning and to talk to you about building the forces that we need to meet national security commitments.

As you know, the services don't determine what those commitments are. The administrations over the years give those commitments to us. Services also don't control the threat. Our job is to tell you what we think we need to counter that threat and to satisfy those commitments. That is what we are here to do. That is what is in our budget.

NEED TO MAINTAIN THE MOMENTUM

The threat is growing, obviously, and we think we need to maintain the momentum that we have had over the last few years in order to handle the threat.

Mr. Chairman, I would like to give you a sort of report card on how well we have done, what we have done with the money that you have given us over the last couple years. I will give it to you on the basis of my experience. As the Secretary said, I was in Europe for 2 years until last summer when I came here. I would like to give you a report from my European perspective. The other commanders at the table here will tell you the same thing, if you want to ask about what happened in their own individual commands.

When I got to Europe in 1980, we had reached a low point in terms of operational readiness, in my opinion. The O&M moneys, operation and maintenance moneys, were so low and the flying hours were so low that it was really getting to the morale of the troops. They weren't able to do their jobs and they knew it.

When you visited the bases, you saw roofs that needed patching—they were leaking—buildings needed painting, ramps were bulging up; we didn't have the moneys to repair them. There was a direct readiness impact on us. As a matter of fact, when Congressmen and Senators came to visit our bases we were a little ashamed to take them to look at the bases. Senator Warner is not here, but he was one of them.

Plus as I was saying, the flying hours were down to 14 or 15 hours a crew per month and that is not enough. We had to cut out such things as deployments to gunnery camps. We had to back off on that. We went primarily in Europe to Zaragose and other places to fire gunnery. We cut back on that.

In simulated combat training with other nations, the squadron exchanges we have with other nations, we had to cut back on those. I could go on and on about that. We had to cut the direct training for our readiness and combat capability. That was the status in 1980.

The last 2 years, 1981 and 1982, as you know, were pretty good. I failed to mention, by the way, in those earlier years we had a very low quantity in missiles and munitions. That is a heck of a shape to be in.

It reminds me of a question that Gen. Curtis LeMay, when he was Chief of Staff, asked the Air Staff when I was a major. I had to work on the answer. He asked, "If we go to war in central Europe, what will we run out of first, airplanes or munitions and spare parts?"

That is a gut issue. We worked on the question for a few weeks and came up with an answer which should have been obvious to everybody. You run out of airplanes first. If you run out of parts and spares and munitions, you have a damned expensive static display sitting there with nothing to drop, shoot, or fight with.

That is almost the situation we were in in 1980. Since then we have gotten good production rates on our missiles. Our air-to-air missile situation has improved. I can't say exactly how high it has gone, but it is considerable. We have good production rates and they are up now so that we are in a position where I think we could put up a good fight.

INCREASED FLYING HOURS

Flying hours are also up now. In 1984 this budget will bring us up to 20 hours a month for our crews. That is what we have been shooting for to get the most out of our airplanes. It is a good investment. Our crews have to fly air-to-air, air-to-ground, conventional, nuclear, and special delivery. You can't do that to the maximum proficiency if you are only getting 14 to 15 hours a month.

Again all that is a good extender, a force extender to get the most out of what you have in place. That is also a contribution to sustainability. That is what it is all about.

So we do have enough money now. The difference since I left in 1982 is encouraging. Go to all the bases and see the living and working conditions and the changes that have been made. Let me also add, as the Secretary mentioned, morale and retention have never been better.

But in 1983, as you all know, we suffered some cuts; the impact of those cuts in 1983, just let me give you a few examples. Of course, you know about the MX which we won't talk about. That was a big cut which will delay basing, of course, and testing. But beyond that, the ground-launched cruise missile, we lost the support moneys for that. So, the troops are going to have to go over to Europe now in unaccompanied status on a remote tour. They go for 1 year since GLCM is a one-of-kind system. So you churn up the personnel turbulence because you have to send those personnel more often than they should go for overseas tours. That is unfortunate because you are always in a training mode, and you are never quite ready.

I think one of the quickest ways we can improve our capability to fight in Europe is to get on with collocated operating bases. Without them, 500 fighter aircraft going over there would not be able to hit the ground running.

COB's are one of the biggest bargains I know because for every dollar we put up, we get 10 dollars' worth of facilities from the host nations in the way of runways, communications, and whatnot.

As you know, it is a catch-22. We need prefinancing in the MILCON in order to get a number of days of POL and ammo storage facilities so that when those planes come on short notice, they can operate. Now supplies have to come from central storage, and you have to have a little warning time in order to be able to fight.

TAC AIR

Finally, we had to lower our procurement of TAC air because of the fiscal year 1983 cut. TAC air, as you know, is an area where we are far below. We are down 100 per year below what we ought to be buying just to maintain the age of our force.

The average age of our tactical force is now beyond 8.7 years and increasing. The Soviet's aircraft are about 7½ years old. We think that makes a difference. We have to arrest that trend someplace.

RESERVE FORCES

Let me now just get on with a comment on the Reserve Forces. The Secretary also mentioned Reserve Forces. The Air Force is very proud of the Reserve Forces: Air National Guard and Air Force Reserve. They are as good as the Active Forces. They prove it every day. We could not get our job done without the Guard and Reserve.

As you know, they are fully integrated in all those missions and roles that the Secretary mentioned. They are also good enough to take the best airplanes that we have. A third of our A-10's now, of course, are in the Guard and Reserve.

This year the F-16's are going directly to the South Carolina Air National Guard down at McEntire. Next year in Utah, F-16's will go from the factory to the Reserves at Hill AFB. After that, in the outyears, five more squadrons of F-16 air defenders will go directly to the Guard, and we are looking at F-15's and more F-16's for the Guard and Reserve. So they are flying the best we have and they are doing that because they know they can handle it.

Finally, Mr. Chairman, let me just emphasize what the Secretary also said. We have a strong Air Force, and it is strong because you make it that way. We have the most talented people in the Air Force that we have ever had, and we certainly appreciate your help in keeping it that way.

Thank you, sir.

Chairman Tower. Thank you, General Gabriel.

[The Posture of the Air Force, a joint statement by Hon. Vernon Orr, Secretary of the Air Force, and Gen. Charles A. Gabriel, Chief of Staff, U.S. Air Force follows:]

DEPARTMENT OF THE AIR FORCE

JOINT STATEMENT

BY

THE HONORABLE VERNE ORR
SECRETARY OF THE AIR FORCE

AND

GENERAL CHARLES A. GABRIEL
CHIEF OF STAFF, UNITED STATES AIR FORCE

BEFORE

COMMITTEES AND SUBCOMMITTEES
OF THE
UNITED STATES SENATE

98TH CONGRESS

THE POSTURE OF THE AIR FORCE AND BUDGET ESTIMATES FOR FISCAL YEAR 1984

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EXECUTIVE SUMMARY

In the past two years, the United States has made a good start in strengthening the Air Force to meet the growing Soviet threat. With strong public and Congressional support, we have laid a firm foundation for a long term, measured program — one that will help ensure peace and freedom for ourselves and our Allies. We need to continue this momentum.

For many years the Soviet Union has been outspending the United States for new weapons systems. The Soviets devote nearly 15 per cent of their gross national product (GNP) to their military forces — more than twice our effort. We are now seeing the results as new Soviet missiles, aircraft, ships and tanks take the field.

This Soviet arms buildup is shifting the balance of power. With its growing military strength, the Soviet Union is more confident in its ability to reach political objectives using force and intimidation. We need only observe the continuing Soviet brutality in Afghanistan, the political coercion of Poland, and the increasing subversion in Latin America, Africa, and Asia.

Since World War II the security and freedom of the United States and its Allies have depended on strong deterrent forces. For deterrence to be effective, we need both military capability and the resolve to use it, if necessary, to protect our vital interests.

Our military strength has to extend across the spectrum of the Soviet threat — from special operations through conventional combat to strategic nuclear war. When we stand up for our convictions backed by powerful forces, a potential aggressor will be dissuaded — as the Soviet Union was during the Cuban missile crisis. Strength does not invite war. Weakness does.

Priorities

Our programs are geared toward deterring war at any level. In doing this, we are getting the greatest strength from the dollars entrusted to us. The key to success in all these efforts is the men and women of the Air Force. Taking care of our people is a responsibility second to none. Additionally, to correct our most pressing deficiencies, we have set the following priorities:

- modernize the strategic nuclear forces;
- improve readiness and sustainability of the general purpose forces;
- increase airlift capacity;
- modernize and expand the tactical forces.

Strategic

The most urgent task is to modernize the strategic forces because we cannot risk the failure of nuclear deterrence. Accordingly, we are strengthening our nuclear forces to maintain a credible deterrent and a stable nuclear balance. We need an effective, survivable Triad of strategic forces — bombers, intercontinental ballistic missiles, and submarine launched missiles. The Triad complicates Soviet planning for an attack on our strategic nuclear forces, prevents them from concentrating efforts to defeat a single element, provides maximum flexibility in the use of our forces, and hedges against catastrophic failure of any one leg.

Each element of the Triad has distinct advantages. Land based missiles have the best capability against hardened Soviet command centers and missile silos. They have great accuracy, prompt response, high alert rates, and low operating costs. Bombers are the most flexible element. They can be launched, redirected, recalled, and used again. They can be used a variety of ways, including attacking imprecisely located targets, conventional operations, and sea lane control. Missile carrying submarines contribute survivability and endurance. Taken as a whole, the Triad ensures that our forces can survive a Soviet first strike and retaliate with devastating force -- the very basis of deterrence.

In the past, we were confident that our strategic nuclear forces could survive and retaliate, but that is less certain today. Since 1974, the Soviets have developed and deployed new, more powerful and increasingly accurate strategic systems (three ICBMs, three ballistic missile submarines, two SLBMs, and a bomber). At the same time, we did not do all that was necessary to maintain the strategic balance. The Air Force has not fielded a new ICBM or bomber since the early 1970s. As a result, the Soviets have gained important advantages. Failure to strengthen our nuclear forces will cause us to face the danger of clear Soviet superiority.

We are continuing with the five-part strategic modernization program announced by the President in October of 1981. This program will redress the weaknesses created by the Soviet buildup; form the basis for meaningful arms reductions; and create a more secure, stable deterrent to Soviet aggression.

We are working hard to improve the survivability and performance of our strategic surveillance, warning, and command, control and communications systems. The first squadron of B-52s equipped with air launched cruise missiles is now operational. The B-1B and follow-on, advanced technology bomber programs are on schedule. The new, more accurate and more powerful Peacekeeper missile, survivably based, will ensure the retaliatory power of our ICBMs for many years. If we do not deploy the Peacekeeper we will undercut our position in the Strategic Arms Reductions Talks.

Readiness and Sustainability

Since the potential for any type of conflict is always present, our conventional forces have to be ready to fight at any time, and they need the staying power to win. A strong conventional capability is essential for deterrence and raises the nuclear threshold. In the late 1970s, while we were modernizing our general purpose forces, the measures required to support them -- training, maintenance, spares, and munitions -- lagged behind. War readiness declined, morale suffered, and training opportunities were lost.

During the last two years, we doubled the funding for readiness and sustainability and are now seeing the results. Our crews are flying more -- training more effectively -- and our stocks of munitions and spare parts are increasing. Moreover, the operational readiness of our new tactical fighters is improving and is markedly better than that of the aircraft they are replacing.

Force Projection

No matter how good our equipment, tactics, and training, our forces are of little value if we cannot get them to the battle promptly. Since we cannot control the time and place of combat, we have to be able to move quickly to defend American interests anywhere in the world. We have had serious shortages in airlift for some time, and we are moving to reduce them. Modification of the current fleet and more spare parts have substantially increased airlift capacity. In the near term, we will buy 50 C-5Bs, add 44 KC-10As, and revitalize the Civil Reserve Air Fleet enhancement program. For the longer term, we will develop the C-17 to increase and modernize both intertheater and intratheater airlift. Together these actions should significantly reduce the airlift shortage.

Tactical Forces

We need to strike a balance between readiness and modernization of tactical forces. We not only have to be ready to fight with today's forces but we need to modernize to meet tomorrow's threat. Soviet forces are increasing not only in quantity but in quality as well. For example, their modern tactical fighters have increased range, can operate in adverse weather, and have greatly improved offensive capability.

We have the best fighters in the world today, but we need to improve their air-to-surface, night, and weather capabilities to meet the growing threat. Our emphasis will be on better avionics and munitions. We are committed to stable production of F-15s and F-16s to modernize and expand the tactical air force. With Congressional support, we intend to keep two fighter production lines open into the 1990s.

People

Ultimately, our capability as an Air Force depends on our people. Recent combat has shown again that well-trained, well-led, and well-motivated people win battles. When a pilot resigns, when a crew chief hangs up his or her uniform, years of irreplaceable experience are lost. The best equipment that money can buy will not carry the day without the right people.

In contrast to the 1970s when too many of our experienced people left us, we are now retaining experience and attracting high-quality recruits as well. As a result, our combat capability is improving. Unless we continue to take care of our people -- pay them fairly and provide the entitlements they have earned and deserve -- we will face serious problems in the future. We have to be competitive in the marketplace.

Space

While emphasizing our priorities, we face new challenges in space. US commercial and military dependence on space will grow, and we need to plan for it now. We are dependent on space for warning, communications, and command and control of our forces world-wide. In recognition of the increasing role and importance of space systems, we have taken two important steps. First, we have set out the doctrinal basis for developing, deploying and employing space systems. Second, we have established Space Command to consolidate management of Air Force space operations programs and to link research and development activities with military requirements and operations.

In the past, our space systems operated in a benign sanctuary, but this situation is changing. The Soviets have developed an operational anti-satellite weapon that threatens both civilian and military spacecraft. At a minimum we have to ensure our space systems can survive and operate in a wartime environment. We will protect our space systems and maintain access to space as a hedge against the Soviet drive to exploit space for military advantage.

Tactics, Training and Technology

The goal of all our programs is to assure deterrence. While numbers are important, we depend on high-quality people, realistic training, innovative tactics, and superior technology to give us the critical edge in combat over numerically superior forces. Aggressive, realistic training exercises, such as Red Flag, contribute greatly to the readiness of our forces and to the development of creative tactics.

The Air Force does not plan to fight alone. We exercise, train, and plan closely with our sister Services and our Allies. World-wide deployments and joint exercises are frequent. We are taking further steps to integrate air and land operations, to enhance Air Force contributions to maritime operations, and to develop complementary capabilities to get the job done in the best way possible.

The Air Force is a Total Force. The Air Reserve Forces — the Air National Guard and the Air Force Reserve — are fully integrated with the active forces in peacetime and in planning for wartime operations. Guard and Reserve fighters frequently fly 3,000 miles non-stop from the US to Europe to participate in exercises with our Allies. Guard and Reserve tankers routinely refuel B-52s. Half of our strategic airlift crews are Reservists. The Reserve forces are ready to respond quickly and effectively in crisis situations. We will continue to modernize Guard and Reserve equipment to increase the capabilities of the Total Force.

Besides superior tactics and training, we need to pay close attention to the other driving element — technology. We have to stay on the frontiers of technology — our ace in the hole — and protect our advantages. Western technology can offset Soviet numerical superiority if we exploit it wisely and flexibly. At the same time, we cannot afford to let our technological advantages slip or be stolen away to be used by the Soviet Union. We cannot allow our combat capability to be threatened by Western technology in Soviet hands.

Installations and Management Initiatives

During the 80s we need to modernize our base facilities to bring them up to a level consistent with the needs of our modern weapon systems and the people who operate and support those systems. Major capital investment is needed to maintain, repair, and replace old facilities and to support construction for new missions. These investments are essential for readiness and sustainability.

To ensure we get the most from the funds entrusted to us, we are striving to manage our programs more efficiently and to guard against waste. Measures include increased use of multiyear contracting where feasible; accelerating weapons' acquisition times; steps to increase productivity and to control costs in defense-related industries; and vigorous efforts to prevent, detect, and eliminate fraud, waste, and abuse. These and other initiatives will help produce effective, combat-ready forces at reasonable cost.

FY 84 Budget

The Air Force FY 84 budget request for $92.9 billion identifies the funding needed to maintain the air power necessary to meet our global responsibilities. This amount is roughly two per cent of our GNP and is less than our 20 year average.

Our nation can afford these improvements. As shown in the figure below, we are recovering from a post-Korean War low in the proportion of national resources allocated to defense spending. That occurred in 1978 and 1979 when we committed only five per cent of our GNP on defense. As recently as 1962, we devoted about nine per cent in a peacetime year and did not consider that too much. The GNP percentage has increased slightly in recent years, and with continued, moderate growth, this nation will have the deterrent forces it needs.

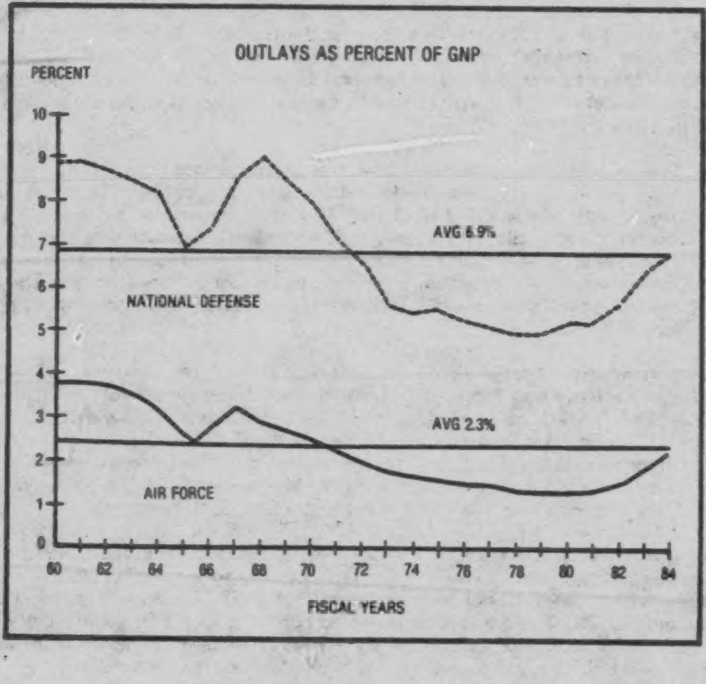


Figure I

We have a strong Air Force, but trends in Soviet force developments are against us. With continued public and Congressional support we will maintain both peace and freedom. Today, we face a time when our forces may be seriously tested. They must not be found wanting.

I. STRATEGIC FORCES

The principal objective of our strategic forces is to prevent war. These forces are the foundation of our deterrence strategy. We need to deter the Soviets from initiating an attack by maintaining our forces such that the Soviets will know our retaliation to their first strike would inflict unacceptable damage to them.

The massive Soviet strategic buildup over the past decade creates doubt about our ability to deter in the future unless we proceed with the President's strategic modernization program. The President's program offers the additional advantage of increasing Soviet incentives for meaningful arms reduction negotiations.

Soviet Force Development

The steady expansion of Soviet nuclear capabilities poses a clear and growing danger to Western security. They have developed and deployed new, more powerful, and increasingly accurate strategic systems (three ICBMs, three ballistic missile submarines, two SLBMs, and a bomber) since 1974. The US has deployed only an SLBM and an SLBM submarine, and the Air Force has just activated the first B-52/ALCM squadron. Improved Soviet offensive capabilities, upgrades in defensive missile, aircraft, and supporting equipment, and more effective and survivable means to command and control their forces are disturbingly consistent with the nuclear warfighting objectives presented by Soviet military doctrine.

The Soviet ICBM improvements are the most threatening. They have deployed more than 750 SS-17, SS-18, and SS-19 ICBMs since the mid-1970s, most armed with highly accurate, multiple warheads. Total warheads in their ICBM force number over 5000. Although not yet deployed , a new, solid propellant ICBM, which may eventually be land mobile, is undergoing flight testing. The major Soviet design agencies maintain a rigorous ICBM development program which shows no sign of slackening. They now may be able to reload a portion of their ICBM force, permitting them to conduct nuclear war over an extended period.

These dramatic improvements in Soviet ICBMs form one part of a two-edged problem for our Minuteman force. First, using a relatively small portion of their current ICBM force, the Soviets could destroy most of our current ICBMs and C^3 targets in a first strike. Second, the Soviets have hardened their ICBM silos, command posts, and other significant military facilities to the point that Minuteman missiles have only limited capability against them. Accordingly, Minuteman is vulnerable, and even if it survives, it has limited effectiveness against important Soviet targets.

The new Soviet SLBM systems will have improved accuracy, increased throwweight, and better reliability. Their new 20-tube Typhoon submarine — the largest submarine in the world — will be operational soon and carries the SS-NX-20, a new, solid propellant, MIRV-capable SLBM. The Soviets continue to build the Delta III submarine, carrying 16 SS-N-18 SLBMs. These missiles can strike targets anywhere in the US from waters near the USSR. Soviet SLBMs add over 2000 warheads to their nuclear arsenal.

The Soviets are continuing to build 30 Backfire bombers a year while retaining the Bear and Bison bomber force. While there is still some debate about the role Backfire would play, it can achieve intercontinental range with refueling. In addition, a new long range bomber, the Blackjack A, is in development. This bomber should be deployed in the next few years and be capable of carrying a variety of payloads, including cruise missiles. Soviet strategic cruise missiles are also under development and will be deployed soon aboard various submarines and long range bombers.

Soviet air defense improvements are extensive as well. New defensive systems include the SA-10, a surface-to-air missile designed to counter low flying aircraft, with some capability against cruise missiles. Other surface-to-air missile improvements are being made through modifications to existing systems. These include better command and control features, increased engagement envelope, improved mobility, and increased firepower.

Current Soviet interceptors have been equipped with additional armament and modernized avionics, and newer interceptors have a "look-down, shoot-down" capability. A new Soviet airborne warning and control system includes a more capable early warning radar and better data transmission systems. These and other qualitative improvements significantly increase the threat to our current bomber force.

The Soviets continue their active ABM research and development program. In the future we may see new phased-array radars, a rapidly deployable ABM system with both short and mid-range interceptors, and possibly application of high energy laser and charged particle beams.

Collectively these Soviet developments seriously challenge the strength of our nuclear deterrent. The Soviets now can seriously damage our Minuteman force with a first strike. Further, within the next few years, our current bombers could suffer substantial losses against their improved defenses. We will face significant strategic inferiority unless we continue with the President's proposed actions for modernizing and strengthening our strategic forces. Ensuring the strategic balance is fundamental to our security.

President's Strategic Modernization Plan

We need the ability to survive a Soviet first strike and retaliate effectively so that the Soviets do not see any advantage to be gained from a nuclear attack. Our friends and foes alike must know that we have the determination to establish and maintain a credible deterrent force.

To do this, President Reagan announced a five-point strategic modernization plan in October 1981 having the following elements:

- Modernizing our aging strategic bomber forces by fielding 100 B-1B bombers and increasing procurement of air launched cruise missiles, while also pursuing vigorously the development of an advanced technology bomber;

- Improving the striking power and survivability of our ICBM forces by deploying the M-X;

- Enhancing the survivability and performance of our command, control, and communications systems to ensure that we can obtain warning of an enemy attack and communicate with our strategic forces;

- Upgrading the nation's defenses against bomber and cruise missile attack by replacing our aging F-106 interceptors with F-15s and improving our atmospheric warning and surveillance with the enhancement of the Distant Early Warning line, deployment of over-the-horizon radars on the East and West coasts, and expansion of our fleet of airborne warning and control aircraft;
- Deploying a new, more accurate, submarine launched missile, the D-5.

The Air Force has responsibility for most of this comprehensive program. Our programs and priorities for modernization are a continuation of what we reported last year except for M-X, or Peacekeeper. At Congressional direction, a number of basing alternatives for Peacekeeper are being reviewed.

By 1990 the modernization program should roughly double the number of US strategic weapons that would survive a nuclear attack. We will significantly improve our ability to destroy Soviet hardened targets with our ICBMs and our ability to penetrate Soviet defenses with our bomber forces. We will be able to better communicate with our forces during and after an attack.

As we modernize our strategic forces, we anticipate spending less than 15 per cent per year of the defense budget on strategic forces over the next five years. (In the early 1960s, when we built many of the nuclear forces that exist today, the US spent 20 per cent of the defense budget on strategic programs.) These improvements will enhance nuclear deterrence and provide a sound basis for the negotiation of equitable agreements to reduce strategic arms.

Arms Reductions

Arms reduction negotiations are an integral part of our efforts to reduce the risk of nuclear war. Successful arms reductions depend on our ability to deal from a position of strength, a position that can be maintained only by modernizing all three legs of our Triad. This will allow us to seek genuine reductions in the numbers of strategic nuclear arms and thus reduce tension and contribute to deterrence.

At the reduced levels of nuclear forces proposed in START, modernization of our forces is all the more necessary to ensure the security and stability of our deterrent posture. To accept the lower START levels without force modernization would place us at a significant disadvantage.

Successful arms control requires a substantial reduction, not a freeze, in the arsenals of both sides to a verifiable, equivalent level. A freeze at current unbalanced levels, if implemented, would not be in our best interest. It would leave us in a position of military disadvantage, prevent us from fixing force deficiencies, and preserve Soviet advantages.

Furthermore, preserving Soviet advantages would give them little incentive to negotiate subsequent reductions. It would allow them to focus even more heavily on military programs not covered by a freeze, such as air defenses and anti-submarine developments. Improvements in these areas would further threaten the viability of the strategic Triad.

Strategic Triad

The Triad of ICBMs, bombers, and submarine-launched missiles provides the flexibility and capability to prevent a disarming first strike and complicates Soviet attempts to defend against a mixed retaliatory force. The Triad provides deterrence because it ensures that our forces can survive a first strike and launch a credible counterattack.

The Triad complicates attack against our strategic nuclear forces. It reduces the risk of nuclear war since the Soviets cannot destroy all three legs simultaneously, nor can they concentrate on defeating a single element. The Triad gives us maximum flexibility in employing our forces and provides a hedge against failure of any one leg. The Triad causes the Soviets to invest more in defensive systems, diverting money from additional offensive systems which threaten us.

This deterrent capability has served us well over the past 25 years and will continue to serve us in the future if we proceed to modernize and maintain the strength of each Triad leg.

Land Based Missiles

ICBMs are an essential element of our strategic Triad and have unique attributes not provided by bombers or SLBMs. These qualities include very high alert rates; high systems reliability; redundant and high confidence command, control, and communications; highly responsive targeting flexibility; and low operating cost.

More important, ICBMs provide the best accuracy and prompt hard target kill capability. We need the ability to destroy the most valued Soviet targets, such as hardened ICBM silos and command facilities.

Since the Soviets now have the capability to destroy most of our current missile force in a first strike, and our Minuteman has only limited capability against their hardened ICBM silos and command and control facilities, we need to upgrade the survivability and accuracy of our ICBM force. These improvements are essential for preserving the unique contributions of this leg of the Triad.

M-X/Peacekeeper. To ensure that a Soviet first strike against our land based ballistic missiles would not prevent us from retaliating effectively, we need a missile that is survivable and capable against key Soviet hard targets. The M-X, or Peacekeeper, in a survivable basing mode, will provide those characteristics. Deployment of the Peacekeeper will significantly bolster deterrence, taking away any Soviet incentive or hope of gain through a first strike.

The Peacekeeper is a four-stage ICBM carrying ten independently targetable warheads. It will be twice as accurate as Minuteman III, our current front-line ICBM, carry over three times the warheads, and have much greater targeting flexibility. Its greater resistance to nuclear effects and its advanced guidance system provide a better capability to destroy the most highly valued Soviet targets, thereby improving deterrence. The missile is currently in full scale development with the first test flight scheduled for 1983.

We have recommended that Peacekeeper be deployed in new, hardened capsuules in closely spabed basing (CSB). CSB provides required survivability, can be accomplished at reasonable cost, and can be deployed with minimal environmental impact. Peacekeeper in CSB would constrain the Soviets' ability to overcome our ICBMs with numbers alone. Since the Soviets could not be certain of success in attacking the Peacekeeper in CSB, that uncertainty itself further strengthens the value of the missile for deterrence.

The President supported the Defense Department recommendation on CSB, but the last Congress restricted obligation of funds for full scale development until the President submits a detailed assessment of missile and basing alternatives. As a result, the President has appointed a Commission on Strategic Forces to review our nation's nuclear deterrence posture and nuclear weapons programs. We will provide the Commission whatever information they request in studying the issues and in preparing their recommendations to the President.

Minuteman. The current Minuteman force is composed of 450 Minuteman IIs and 550 Minuteman IIIs. Our FY 84 request for $197 million is to improve the missiles' reliability, accuracy, and endurance.

An ongoing program to replace propellant will greatly increase the missile's reliability. We also plan to replace old electronics in the Minuteman II guidance set with current technology parts to help us maintain these older systems. Placing lithium batteries in Minuteman III silos will increase time available under emergency power by a factor of 15, allowing longer access to surviving missiles after an attack. Finally, new communications systems will enhance command and control capabilities, and improvements to ground facilities will arrest age-related system degradation.

Titan. Titan II, our oldest and least cost-effective ICBM, is being phased out. The retirement schedule, which will be completed in 1987, reflects a prudent drawdown consistent with safety and logistical constraints. Further, it will allow those missiles on alert during the phase-out period to remain committed to nuclear employment plans and our deterrent posture. During the past two years, the Air Force has made numerous improvements to allow the system to be safely operated and removed.

Advanced Strategic Missile Systems. We are exploring advanced technologies in missile, reentry, and basing subsystems, as well as in penetration aids. Our intent is to be prepared to quickly upgrade our missile force, if necessary, to counter Soviet advances.

The FY 84 request of $98 million will be used for advanced development of a ballistic missile defense penetration system for Peacekeeper and Minuteman and exploration of other technologies related to future ICBM improvements.

Manned Bombers

The bomber is the most flexible element of the Triad. It can be launched and controlled prior to a decision to employ nuclear weapons. It can be redirected, accomplish attack assessment, and be reconstituted for follow-on missions. Bombers can be launched to ensure their survivability or to signal national resolve during time of crisis.

Bombers carry a large number of weapons, and each bomber can cover widely separated targets. It provides the only capability to engage imprecisely located or mobile targets by using the crew and aircraft sensors to determine target location. As reuseable weapon systems, long range combat aircraft can deliver large nuclear or conventional payloads accurately throughout the spectrum of conflict. In maritime roles, bombers can provide long range sea surveillance, ship attack, and minelaying.

The nature of conflict throughout today's world vividly demonstrates that conventional bombers are still a necessity. We can use our B-52 force as a conventional deterrent, and this was aptly demonstrated by their performance in exercise BRIGHT STAR 82. B-52s flew approximately 8,000 miles to Egypt, dropped their bombs within 30 seconds of designated times, and returned to base non-stop.

Our bomber modernization program is designed to counter Soviet defense improvements, overcome limitations imposed by the advanced age of the B-52, and control increasing maintenance costs. Because the B-52s are not fully hardened against nuclear effects and are relatively slow in escaping from their bases, they are vulnerable to attacks from Soviet submarines patrolling our coasts. In addition, their large radar reflectivity and relatively slow speed at low altitude seriously reduce the aircrafts' ability to penetrate Soviet defenses.

To keep the B-52 as a penetrator over the long term would require enormous expenditures for modifications. Although they still have valuable conventional and cruise missile carrier roles, development of new bombers to assume the penetrator role is essential.

Our bomber modernization plan, the same as reported last year, will maintain the usefulness of the B-52 while laying the groundwork for increased bomber capability in the future. The plan calls for production of 100 B-1Bs to increase near-term capability; conversions of B-52Gs and Hs to cruise missile carriers and conventional roles to maintain their usefulness over the long term; retirement of B-52Ds to save money; and development of an Advanced Technology Bomber (ATB) to meet the challenge of the future.

B-1B. Despite Soviet improvements, we are confident that the B-1B will be able to penetrate the projected Soviet air defense network well into the 1990s. This ability is gained through a combination of low altitude penetration tactics, speed, improved electronic countermeasures, and a significantly reduced radar cross-section. These technological improvements in the B-1B will ensure continued effectiveness for years to come.

The B-1B will be able to perform the missions of conventional bomber and cruise missile carrier as well as nuclear weapons delivery. Therefore, as the B-52 nears the end of its service life and the ATB enters the force, we will be able to use the B-1B in multiple roles, thereby maintaining our conventional and cruise missile capability well into the next century.

We remain committed to producing 100 B-1Bs and initial spare parts within the projected cost of $20.5 billion in constant 1981 dollars. The FY 84 request of $6.929 billion, about .2 per cent of our GNP, is for research, development, test, and evaluation; procurement of ten aircraft; and initial spares. We still project an initial operational capability in 1986, and B-1B contractors are on or ahead of schedule and within cost.

B-52. The B-52Hs and majority of Gs will be converted to cruise missile carriers. B-52Ds will be retired and the remainder of the Gs will pick up the Ds' conventional role. As their penetration capability declines during this decade, the B-52 strategic role will transition to a shoot-and-penetrate mission and finally to pure stand-off delivery.

We are requesting $607 million in FY 84 to fund the Offensive Avionics System (OAS), Cruise Missile Integration (CMI) with internal and external carriage, and related modifications necessary for the B-52 to effectively perform its intended roles.

ATB. We continue to pursue development of an Advanced Technology Bomber (ATB) to ensure we maintain the advantages of manned bomber weapons delivery into the twenty-first century. We are proceeding with development of the ATB at the fastest reasonable pace to deploy a bomber that is effective across a range of combat applications and that is durable and maintainable as well. The ATB requires an orderly and logical development pattern to capitalize on new "stealth" technology and to avoid costly redesigns.

Air Launched Cruise Missile (AGM-86B) (ALCM). The cruise missile is an effective weapon for attacking preplanned, fixed strategic targets. A survivable, accurate, long range weapon, the cruise missile will increase bomber targeting and routing flexibility; reduce exposure of our bombers to present and projected air defense threats; and confront the enemy with a large number of attackers. The initial operational capability of B-52Gs equipped with 12 external ALCMs each was achieved in December of 1982.

We plan to continue our follow-on testing of ALCM over operationally realistic terrain. We will ensure that the missile and missile improvements meet our needs. We anticipate selection of a contractor for the second generation ALCM (the Advanced Cruise Missile) in Mar 83. Our objective remains to improve the survivability, range, and accuracy of the ALCM in response to the projected Soviet threat.

- **Command, Control, Communications (C^3)**

Strategic command, control, and communications programs (C^3) are necessary to manage and employ our strategic forces. Effective deterrence requires a C^3 system to enable the National Command Authorities (NCA) to reliably monitor and communicate with the strategic forces. If deterrence fails, the C^3 system must then provide the necessary information, command facilities, and communications to prosecute a nuclear war effectively.

Rapid communication among warning sensors, the NCA, and commanders of nuclear forces is vital to the survival and employment of strategic forces. Our command, control, and communications systems should provide high confidence, unambiguous and timely warning and attack assessment information to the President or his designated successors. It should also ensure that the NCA can communicate effectively with our strategic forces. Upgrading our C^3 systems is the first priority of our strategic modernization program.

Technology has enabled us to gain better understanding of disruptive effects of nuclear weapons, whether from a ground burst, an airburst, or a high altitude detonation against our command and control communications systems. Our present landline, radio, and satellite systems could be seriously disrupted during and after a nuclear attack. We are working with other DoD agencies to develop and implement electromagnetic pulse standards and specifications for use in acquisition of strategic C^3 systems.

The Air Force is upgrading its world-wide high frequency (HF) radio stations with equipment to provide improved coverage. New state-of-the-art equipment will replace present airborne HF radios permitting a building block approach to future improvements known as adaptive HF. We are also adding terminals for the Air Force Satellite Communications System in bombers, missile launch control centers, and airborne command posts to ensure highly reliable two-way communication between command centers and the forces.

On another front, we are exploring improved satellite capabilities at frequency ranges which can sustain communications in a jamming environment and under nuclear conditions. The Milstar Satellite communication program is designed to fulfill the urgent need for highly jam-resistant and survivable satellite communications for the command and control of strategic and tactical forces. Strategic bombers, airborne and ground command posts, missile warning and attack assessment sensors, and the tactical forces will use this communications system.

Our Very Low Frequency (VLF)/Low Frequency (LF) improvement program continues with development of higher power transmitters for our airborne command posts, miniature VLF/LF receivers for our bomber aircraft, and new signal processors to improve performance in a jamming environment. In addition, a proliferated ground-based LF radio relay system, consisting of station and users terminals, will be employed beginning in FY 85 to help ensure dissemination of emergency action messages in a stressed environment.

In sum, we will be undertaking a wide variety of efforts to upgrade our strategic command, control, and communications over the next several years. We are requesting increased funding to continue reconstruction of our C^3 network and fund the warning system improvements discussed below.

Strategic Defense

Our strategic defenses provide timely warning and assessment of enemy missile or bomber attack and defend against Soviet bomber and cruise missile strikes. Timely, reliable warning is required to ensure that we can retaliate effectively in a manner appropriate to the character of the enemy attack. Competent atmospheric defenses are necessary to limit the damage that would be inflicted in bomber strikes.

Atmospheric Defense. Over the past 20 years, the US significantly reduced forces assigned to atmospheric defense. At one time we had 2,600 interceptors but today there are only 260. As a result, we need to continue with steps already underway to replace aging systems and improve our defense capability. Most pressing is the upgrade of tactical surveillance systems to provide warning to support intercept operations and assure that retaliatory responses can be made. Our current system has serious deficiencies in providing the desired warning to the NCA even under the best of conditions.

Atmospheric defense of North America has long been a cooperative US-Canadian effort, and surveillance and warning systems are configured to control access to North American airspace. At present, the surveillance system is composed of ground-based radars in the Distant Early Warning (DEW) line, the CADIN-Pinetree system in southern Canada, and the Joint Surveillance System (Federal Aviation Administration and military joint use radars in Alaska, Canada and the continental United States).

During periods of crisis, we would augment surveillance and airborn command and control of interceptor forces with the E-3A AWACS. Fighter interceptor aircraft currently assigned to atmospheric defense missions include F-106s, F-4s, and F-15s. Ten of the 15 air defense squadrons are provided by the Air National Guard.

The North American Air Defense Master Plan addresses requirements and force structures necessary to upgrade our capability to provide tactical warning, attack assessment, damage limiting response, and airspace control. To meet surveillance requirements, we plan to upgrade aging DEW line radars with 50 minimally attended long and short range radars.

To extend the coastal coverage beyond the limit of the Joint Surveillance System radar, we will deploy long range Over-the-Horizon Backscatter (OTH-B) radars on the East and West Coasts. Addition of a southern-looking OTH-B will complete wide-area surveillance in defense of the North American continent. These radars will provide all-altitude coverage and early warning of hostile intruders out to approximately 1800 miles.

To provide survivable command and control in wartime, AWACS aircraft are currently available to NORAD and we plan to procure additional AWACS for North American air defense. Funding for OTH-B, the improved DEW line and advance procurement money for the E-3A AWACS in FY 84 is $305.2 million, $144.4 million, and $76.2 million respectively.

The active air defense fighter force will be modernized by replacing the four remaining squadrons of aging F-106 fighters with F-15s. (A fifth squadron has already been converted.) F-15s have a long range, large volume search radar and a look-down, shoot-down capability to complement the wide-area surveillance system. In the future, ANG F-106 and F-4 air defense squadrons will convert to F-15s and F-16s. We are requesting $161.3 million in FY 84 for military construction, O&M, and spare parts procurement associated with deployment of air defense F-15s in our active forces.

Ballistic Missile Warning. The credibility of our national defense policy of nuclear deterrence is critically dependent on our ability to provide unambiguous, timely, reliable, survivable, and enduring tactical warning and assessment of an enemy missile attack.

Ballistic missile attack warning and assessment are currently accomplished by space satellite systems; three Ballistic Missile Early Warning System (BMEWS) sites; the Perimeter Acquisition Radar Attack Characterization System radar near Grand Forks AFB; the Eglin AFB FPS-85 radar; the MacDill AFB SLBM radar; and two PAVE PAWS SLBM detection and warning sites located on the East and West Coasts.

Several of these systems are being upgraded. Satellite data survivability is being improved with the addition of more survivable ground stations. Replacement of the aging Missile Impact Predictor computers at the BMEWS sites in Alaska, Greenland, and England continues. We will soon initiate modifications to the BMEWS radar at Thule which will permit tracking a larger number of objects with considerably increased impact prediction accuracy.

Environmental studies for two additional phased array radar sites for the detection of submarine launched ballistic missiles are being conducted at Robins AFB and Goodfellow AFB. The deployment of these new PAVE PAWS sites will substantially improve SLBM tactical warning capability and allow us to close two older, less capable radar systems which are becoming increasingly costly to maintain.

Space Surveillance and Defense. Space based systems provide an important contribution to strategic defense. Our programs and planned improvements are covered in Chapter V, Space.

II. READINESS AND SUSTAINABILITY

Our forces need to be ready for war at any time. Peacetime readiness strengthens deterrence and is critical to a successful response should war come. Readiness is the capability of forces, units, weapons systems, or equipment to accomplish their assigned mission. It is achieved through realistic operational training, maintaining the elements of the force at a high proficiency level, and ensuring each unit has sufficient spare parts and people to begin combat.

Provisions for wartime sustainability need to be made in advance. We can neither foretell when a conflict will come nor how long it will last. Sustainability, often expressed in days, is the ability of our forces to fight during and beyond the initial period of combat, and is achieved by having adequate stocks of spares, supplies, munitions, and fuel. Our forces need the proper mix of well-maintained, modern equipment as well as trained, dedicated people. They should be supported by modern repair facilities, sufficient spare parts, and adequate stocks of effective munitions from the beginning to the successful termination of hostilities.

Low levels of defense spending in the mid- to late-1970s resulted in a deteriorated physical plant, cutbacks in combat crew training, and increased backlogs in equipment and facility maintenance. The recent emphasis on improved near term readiness and combat capability has gone a long way toward solving previous years' problems; however, continued emphasis is necessary.

In the FY 84 budget submission, we have continued to place a high priority on improving the combat preparedness as well as the staying power of our forces. Our FY 84 funding will enable us to continue to bring spare parts stocks and equipment inventories for our mobility and tactical forces to required readiness levels, improve our inventory of modern munitions, and reduce the backlog in base facility maintenance. We will also increase operational flying hours and train more effectively.

The Air Force has made significant progress in improving the quality and realism of operational training programs. Initiatives such as Red Flag and Dissimilar Air Combat Training have helped to increase the readiness of our operational crews. Major exercises and numerous deployments of active, Guard, and Reserve units to wartime operating bases have given operations and maintenance people realistic experience in the environment in which they might fight.

Operation and Maintenance (O&M) Funds

Operation and maintenance (O&M) dollars translate our investments in weapons systems, people and facilities into war fighting capability. Hardware bought with procurement appropriations is operated and maintained with O&M funds. Facilities built with military construction appropriations are supported and maintained with O&M funds. Depot maintenance is an O&M activity that repairs broken components of our systems and is the prime source of serviceable spares in our supply system. O&M also funds civilian work force pay and buys the training our people need to operate and maintain equipment and facilities (the installations portion of O&M is covered in Chapter VI).

The O&M share of the FY 84 program is just over 23 per cent or $21.6 billion. O&M funds are divided among the activities in the approximate percentages shown in Figure 2.

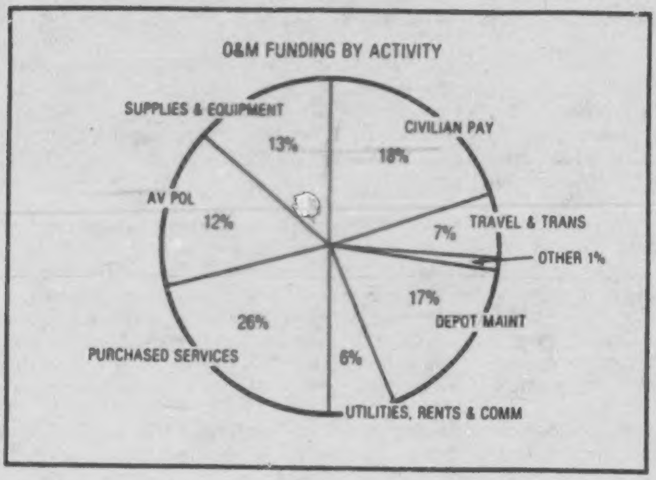


Figure 2

Operational Training

Well-trained people are essential to maintain an advantage in combat operations. Aircrew training needs to be aggressive and realistic. Our crews and combat support personnel need to be trained adequately to enable them to make full use of their equipment and to sustain planned wartime sortie levels. The Air Force needs to train as it may fight--jointly with the other Services and our Allies--if we are to operate effectively together on the battlefield.

Flying Hours. The FY 84 program is needed to maintain aircrew combat proficiency requirements to ensure a responsive and ready force. Total flying hours increase by three percent or 77,000 hours above the FY 83 level and will continue the necessary program growth. These additional hours are part of a long term build and are needed to support a larger primary aircraft inventory, train replacement pilots, support training in new aircraft, and increase the readiness levels of our crews.

Exercises. Our commitment to aggressive and realistic training will continue. Our crews are training on weapon ranges against simulated enemy defenses, practicing with allied airmen and flying in the environment in which they may fight. Red Flag exercises give crews experience in an environment as realistic as possible in peacetime. During Red Flag exercises, our aircrews--including Guard and Reserve units--mobilize at their home base, deploy to Nellis AFB, Nevada, and stage operations out of fields in the Nellis area. Crews fly against simulated enemy aircraft and ground-based defenses and deliver live munitions on mock enemy targets.

Since we plan to fight as part of a combined, multi-Service force, joint exercises with the other Services are particularly valuable. Through the JCS exercise program, we gain considerable experience in deploying and employing forces under the joint operational command arrangement we would have in wartime.

Deployment. Our training programs include deploying active, Guard and Reserve units to overseas wartime locations where they familiarize themselves with deployment bases, work with our Allies by flying in multi-national exercises, and gain experience with the local weather and terrain. These deployments have provided valuable, realistic training for our people. In 1982, fighters from active, Guard and Reserve bases in the US crossed the ocean 524 times on deployments and on all but ten occasions the planned number of aircraft arrived in place, on time, and ready to fight. This training could well be the difference between winning and losing in the early days of high intensity combat.

Strategic Training Center (STC). We are pursuing the development of a Strategic Training Center (STC). The STC would be a companion of the Strategic Training Range Complex already in existence. Under this program, a centrally located air base will provide operations and maintenance support to deployed bomber crews. B-52 and FB-111 crews will deploy to the STC and then fly into the Strategic Training Range Complex to train in a realistic, simulated nuclear warfare environment. The STC will also provide an environment for the development and testing of new procedures and tactics.

T-46A Next Generation Trainer (NGT). In addition to emphasizing exercises and operational deployment, we must also maintain an adequate pilot training base. The aging, numerically inadequate, operationally deficient T-37 fleet dictated the need for developing the NGT. It will have an initial operational capability in 1987 and will replace the T-37 as our primary training aircraft. Acquisition of the T-46A will ensure the Air Force can sustain its pilot production without reductions in quantity or quality. We have requested $129.3 million in our FY 84 budget request to support this program.

Tanker, Transport, Bomber (TTB) System. The TTB system includes aircraft and associated training devices needed for the Air Force to begin a tailored pilot training system called Specialized Undergraduate Pilot Training (SUPT). The SUPT concept requires the acquisition of a TTB aircraft before it can be implemented.

In the current generalized system, pilot candidates participate in common primary and basic phases of Undergraduate Pilot Training (UPT). Wings are awarded upon completion of the basic phase of training. Then the new pilots are assigned to one of two aircraft categories: Fighter, Attack, Reconnaissance (FAR) or Tanker, Transport, Bomber (TTB).

In SUPT, students will be identified at the completion of the primary phase for assignment to either the FAR or TTB tracks. This will allow significant improvements in the basic training provided to the student by focusing on training more applicable to the type of aircraft to which the student will be assigned.

The TTB will be an off-the-shelf business aircraft used to conduct the basic phase of pilot training for students selected for operational assignment to tanker, transport, or bomber aircraft. We will continue to use the T-38 to conduct the FAR track.

Aircrew Simulators. Aircrew simulators are an integral part of aircraft training programs and are used to complement, not replace, flying training. Hands-on flying training is required to allow aircrews to gain experience, while simulators prepare them for the flying training required to maintain combat proficiency. Simulators contribute to readiness by making each flying hour more effective and productive. FY 84 funds are requested to continue development of a tactical visual system and acquire prototype simulators for the B-1B, EF-111, T-46A and C-5/C-141 refueling mission. Production programs will provide additional simulators for the EF-111, F-15 and F-16.

Euro-NATO Joint Jet Pilot Training (ENJJPT). This is a cooperative undergraduate pilot and instructor pilot training program. The nations involved in the program are Belgium, Canada, Denmark, West Germany, Greece, Italy, the Netherlands, Norway, Portugal, Turkey, the United Kingdom, and the United States. The first class graduated in October 1982. The program is progressing well with exceptional cooperation among the nations. It is based on proportionate sharing of program cost and instructor pilot manning. The US share of the cost requested in our FY 84 budget submission is $47.3 million.

Logistics

Logistics in the readiness and sustainability equation consists of war reserve spare parts, munitions and fuels needed at the outbreak of hostilities to sustain our combat forces until the industrial base can be mobilized to meet our wartime requirements. Our logistics objectives reflect preparedness for a prolonged conventional conflict and the need for sufficient war reserves to stay and win. The three major components of logistics sustainability are aircraft replenishment spares, including stock fund repair parts, munitions, and aviation fuel.

Aircraft Replenishment Spares. Adequate funding of replenishment spares is vital to peacetime readiness and wartime sustainability. There are three categories of replenishment spares: Peacetime Operating Stocks (POS), War Readiness Spares Kits/Base Level Self-Sufficiency Spares (WRSK/BLSS), and Other War Reserve Materiel (OWRM). The POS spares support peacetime training and form the baseline of spare parts to which are added stocks needed to support deployments and combat operations. WRSK/BLSS spares support initial wartime surge while OWRM spares provide wartime sustainability until our mobilized industrial production can satisfy wartime requirements.

During the late 1970s, a period of low levels of defense spending, the introduction of new weapons systems was accomplished at the expense of replenishment spares. As new weapons systems entered the inventory our replenishment spares requirement began to grow. At the same time inflation and reduced quantity buys caused the prices of spares to increase. As a result, the funds programmed for replenishment spares in the early 1980s became inadequate. The FY 81 Supplemental and amended FY 82 Budget began to correct the Air Force spares shortfall.

However, in late FY 82 an aircraft replenishment spares problem surfaced requiring an analysis of our spares requirements projection and budgeting methods. We are completing the analysis which will size our replenishment spares shortfall through FY 84. We are improving our methods of predicting future spares requirements, and this budget request makes progress toward correcting the spares shortfall.

The FY 84 budget continues the emphasis on correcting past shortages. Approximately $4 billion has been requested for replenishment spares in this budget submission. This represents a growth of approximately 39 per cent from FY 83. Approximately 74 per cent is allocated to POS, with 26 per cent allocated to WRSK/BLSS and OWRM. OWRM includes spares to sustain our C-5 and C-141 fleet.

While stocks of spare parts are improving as a result of emphasis in the past, production lead times, increasing requirements and cost growth will delay filling our stocks to 100 per cent of our goal. Priority emphasis must continue if we are to achieve the combat capability we need.

Stock Fund. The stock fund contributes to Air Force readiness and sustainability by providing consumable repair parts to maintain our weapon systems, equipment and facilities — and other consumable items such as fuel, medical supplies, and rations. The FY 84 budget request funds for prepositioned war reserve material and OWRM, including aviation fuel. Additional requirements have also been included in the FY 84 budget for inventory to support significant increases in force structure and activity levels. These increases were to comply with Congressional direction to seek direct appropriations for building inventory to support force modernization rather than financing inventory build through the pricing mechanism.

The European Distribution System (EDS). The EDS is an important initiative to support readiness and sustainability in Europe, and is complementary to existing and planned logistics and airlift systems. The system consists of three elements: command, control, and communications for logistics (C^3L) to accomplish distribution decisions; three small warehouses to store selected wholesale assets forward; and an assured airlift element consisting of 18 small cargo aircraft to accomplish the timely redistribution of critical assets. Dollar for dollar, the EDS is our best buy for increasing fighter aircraft readiness in Europe.

This system will distribute fighter aircraft spares and engines in Europe and has the potential to provide the equivalent of approximately 300 additional fighter aircraft (600-800 combat missions) daily in a European war. Without EDS, the Air Force lacks the timely capability to move spares to where they are needed.

Munitions. Effective munitions are an important part of a modern fighting force. Over the past decade our research and development efforts have yielded new generations of munitions with much higher effectiveness. These modern munitions increase the effectiveness of each wartime sortie by destroying more targets while reducing aircraft and crew losses. Today, our weapons stockpile contains a large percentage of older, less capable munitions. However, this year's budget request and our program will bring many newer weapons into the inventory.

The procurement of new munitions will increase our ability to achieve and maintain superiority, and efficiently carry out our wartime plans. To accomplish this, we need to engage and destroy enemy air and ground forces both in the combat zone and at their support bases. Our budget request provides funds to improve our stock of air-to-air and air-to-surface munitions to permit our forces to be ready and then sustain these forces in combat.

Aviation Fuel. The FY 84 program fully funds fuel for our peacetime flying hour program. Last year, the Air Force gained the responsibility for funding War Reserve Material (WRM) aviation fuel at base level. The Defense Logistics Agency (DLA) remained responsible for funding wholesale WRM stocks for all Services. We are requesting $39 million in FY 84 to fill new base level WRM storage requirements.

Air Base Survivability (ABS)

The growing Soviet chemical, air, missile and unconventional attack capabilities increase the vulnerability of our wartime operating bases. These forward bases need to have the ability to survive ground and air attack and still be able to generate sufficient numbers of effective combat sorties. The capability to destroy and confuse enemy forces, to minimize damage by protecting personnel and critical resources, to repair damaged pavement and essential facilities in minimum time, and to ensure survivable command and control are all essential to base survivability.

A balanced program of improvements is needed in passive defense measures such as facility hardening, deception, dispersal, and chemical warfare defense; in active defense including both air and ground defense; and in recovery capabilities to provide for base damage assessment, rapid runway repair, explosive ordnance disposal, and repair of key command, operational, and logistics facilities. C^3 improvements need to incorporate integrated, survivable, and redundant capabilities.

Aircraft enhancements which permit landings and takeoffs on rougher, shorter runways are an important ABS element and minimize base recovery requirements. Taken together, ABS improvements enhance the utility of readiness and sustainability investments.

The Air Force has been making progress on individual ABS elements for years. Chemical warfare defense, rapid runway repair, and facility hardening are examples. Renewed interest in the integration of all elements distinguishes current from past efforts. We have developed an ABS Master Plan Investment Strategy which provides an evaluation of our posture based on present and future threats.

To provide defense against fast moving, low flying aircraft for our seven bases in the UK, we are procuring 32 Rapier fire units and supporting elements from the British. They will provide the manning, training, and maintenance with Royal Air Force personnel. The first units will be delivered in FY 83 with all 32 units delivered by FY 86. The FY 84 program provides $63 million for Rapier procurement.

Wartime Medical Support

The Air Force medical capability currently in Europe and in the Pacific was developed under the outmoded assumption that air bases would sustain relatively few casualties during wartime. Analyses of the threat to air bases in recent years have clearly shown that our medical facilities in overseas areas will not be sufficient for the medical workload during wartime.

Because the Air Force peak casualty load is expected during the first 30 days of a conflict, the capability to provide medical care must be available in the theater when hostilities begin. With current limitations, wounded patients could suffer up to a 25 per cent fatality rate, compared with three per cent in Vietnam and Korea, and five per cent during World War II. To provide wartime medical capability, prepositioning of medical materiel in the theater is necessary.

We are working to provide wartime medical support in Europe and the Pacific and medical capability for the United States Central Command (USCENTCOM). Our FY 84 submission requests $74.7M for two 500-bed contingency hospitals, two 250-bed aeromedical staging facilities, 17 second-echelon emergency treatment units, two air-transportable hospitals, and 18 mobile surgical suites.

The Air Reserve Forces have a significant medical role in both peacetime and wartime. Today, approximately 25 per cent of the US-based C-9 and 67 per cent of the strategic C-141 aeromedical evacuation medical crew member positions are filled by the Air Force Reserve. If war erupted today, the Air Force Reserve and Air Guard would constitute 90 per cent of the aeromedical evacuation medical crews with mobilization of the tactical aeromedical evacuation capability of the Air Reserve Forces.

Defense-Wide Command, Control, and Communications (C^3) Support

To make full use of our combat potential, we need to integrate individual weapons systems into an effective fighting force. This force coordination depends on secure, survivable C^3 systems. The defense-wide C^3 system includes programs and capabilities aimed at providing command and control, logistics, intelligence, navigational and other support communications for peacetime and wartime operations. It does not include systems dedicated to specific warfare missions.

Key programs and their FY 84 funding levels include:

- Common User Terrestrial Communications Program ($401.1 million) provides Air Force support for the operation, maintenance, upgrade, and extension of the Defense Communications System world-wide;
- Defense Satellite Communications System Space Segment ($158M) purchases advance buy parts in FY 84 for four satellites (DSCS III), develops product improvements for production satellites, continues first time integration of DSCS in the space shuttle, and refurbishes the qualification model satellite for launch on the shuttle.
- Base/Support Communications ($258.0 million) includes telephone switches, replacement radio systems, and telecommunications center equipment; and
- Communications Security Program ($147.5 million) develops and purchases telecommunications encryption devices for over 500 separate defense-wide programs.

The quality of defense-wide communications has a direct impact on Air Force readiness, force execution, and combat sustainability. In the FY 84 funds request for these systems, we have emphasized improving the survivability, reliability, and effectiveness of communications which support the National Command Authorities and the theater commanders.

III. FORCE PROJECTION

The United States has vital national interests throughout the world. The US cannot maintain adequate military forces near each location of potential need. Instead, we need to maintain in the US a reservoir of ready forces and the capability to deploy them rapidly. The visible means and the will to project significant military power can deter actions hostile to US interests.

Working together, airlift, sealift and prepositioning provide the capability to respond to world-wide contingencies in areas of enduring United States interest. These mobility programs provide a mix of speed, sustainability, and flexibility. However, in almost all instances the urgent early demands of a crisis must be met entirely by airlift. This airlift capability may mean the difference between victory and defeat since the early days of conflict are often the most decisive. In addition, timely force projection can be a stabilizing factor to prevent small crises from escalating into larger conflicts.

We do not have enough airlift to deploy US combat forces world-wide. The best equipped combat forces are of little value if they cannot be brought to the battle on time.

Southwest Asia Requirements

Transporting our forces to Southwest Asia places the greatest demand on our force projection capability. Through the Persian Gulf, roughly 7000 miles from the US, flows the free world's oil lifeline. We have participated in several exercises to evaluate the capability of the Rapid Deployment Joint Task Force (RDJTF) to project power into the region. These exercises -- Operation Bright Star 82, the largest exercise in the region to date, and Jade Tiger, completed in December 82 -- demonstrated that our ability to protect this vital lifeline is limited by our lack of forward deployed forces, the existence of only limited support facilities, and the lack of assured access to en route bases for refueling in time of crisis.

The evolution of the RDJTF into the new United States Central Command (USCENTCOM) emphasizes the strategic, political, and military importance of the region to the US. The Air Force has composed a balanced and flexible force for deployment in USCENTCOM contingencies to include regular Air Force and Air Reserve Force fighter and tactical airlift squadrons; a Strategic Projection Force of bombers and tankers; and reconnaissance, combat rescue, and communications units. Deployment of these forces will place heavy demands on the Air Force's strategic airlift, especially in the early phase.

As demonstrated in our exercises, our ability to support USCENTCOM remains limited by deficiencies in rapid mobility assets, facility access and munitions shortages. Our FY 84 funding will upgrade existing regional facilities through military construction (improvements in runways, taxiways, parking aprons, munitions storage, etc.), and will increase the quantity of theater-prepositioned items. These prepositioned items will help reduce total cargo lift requirements. Lift can then be dedicated to transporting the manpower and augmentation equipment which cannot be prepositioned but are required to field an effective fighting force.

Airlift Requirements

The shortage of airlift is a major mobility deficiency. The gap between airlift capabilities and requirements is well documented. The Congressionally Mandated Mobility Study (CMMS) set forth overall US military mobility requirements and deficiencies, and evaluated alternative mobility improvements. The CMMS concluded that programmed mobility capability is not adequate to meet current or projected needs and recommended a balanced program of airlift, sealift, and strategically prepositioned equipment and supplies. The CMMS recommended the US acquire additional airlift.

Air Force mobility funding dropped significantly during the 1970s after the acquisition of the C-5A. This resulted in shortages of modern aircraft, spares, materiels handling equipment, and in an aging airlift force. In addition, increases in airlift requirements stem from five factors that have evolved over the last decade:

1. Warning time has decreased because of improved Soviet capabilities, thus placing a premium on bringing US power to bear quickly.

2. Although emphasis has been placed on prepositioned equipment and fast sealift, the operational demands for early arrival of equipment and troops have increased the need for airlift.

3. The Army equipment modernization program has increased both tonnage and outsize quantities.

4. We need to be able to respond to crises not only in Europe, Southwest Asia, and Korea, but world-wide.

5. The political uncertainty about the availability of en route landing and overflight rights and the lack of airfields and facilities in objective areas require greater airlift and refueling capability to insure rapid deployment.

Current Airlift Capabilities

Our current airlift force operates daily throughout the world and is made up of active, Air National Guard, and Reserve units. The Air Reserve Forces provide a significant part of our total airlift capability, contributing about 50 per cent from the C-5/C-141/KC-10 Associate Reserve Program and 58 per cent from the Air National Guard and Reserve C-130 units.

The C-5 represents about 24 per cent of our existing wartime intertheater airlift capability and is the only aircraft able to carry "outsize" equipment (e.g., fighting vehicles, self-propelled artillery, air defense systems, helicopters and communications vans). About 27 per cent of the cargo destined for NATO in the first 15 days of a war is outsize. For a major conflict in Southwest Asia, outsize cargo is about 20 per cent of the first 15-day requirement. Over one-third of the cargo in an Army infantry unit is outsize. Yet, we currently have only 70 operational C-5 aircraft — far short of our needs.

The C-141 is the backbone of our intertheater organic airlift. The 234 operational C-141s represent about 38 per cent of wartime intertheater airlift capability and can carry oversize (jeeps, rolling stock, helicopters) or bulk (palletized packages) cargo. The C-141B program to add an aerial refueling capability and lengthen the C-141A cargo compartment was completed in June 1982 — on time and under cost.

The C-130 is our primary intratheater airlifter. It carries oversize and bulk cargo over short distances. Of the 512 C-130s in the inventory, 294 are assigned to the Reserve and Air National Guard.

The KC-10A is our military tanker and cargo aircraft which accomplishes both airlift and air refueling during deployments. KC-10As are being purchased under a highly flexible, multiyear procurement contract at substantially lower prices than comparable commercial sales. Twenty-four KC-10s have been procured, and eight more are programmed in FY 84. We have achieved more effective use of this versatile aircraft's capability by providing 50 per cent of the aircrews from the Air Force Reserve.

The Civil Reserve Air Fleet (CRAF) is an essential part of our wartime airlift capability. By contractual agreement, civil carriers with long range cargo and passenger aircraft augment the USAF airlift fleet during contingencies. CRAF represents about 38 per cent of our long range cargo airlift capability and over 90 per cent of our passenger capability. CRAF is relatively low cost because the USAF pays full operating costs only when the civil aircraft are used in time of crisis.

The Airlift Improvements Program

Our goal is to attain 66 million ton-miles per day (MTM/D) of airlift capacity as recommended in the Congressionally Mandated Mobility Study. Our plan will fund about 50 MTM/D airlift capacity by FY 88. The remainder will be provided by future airlift enhancements, such as a C-17 acquisition. Figure 3 highlights the key features of our current airlift master plan.

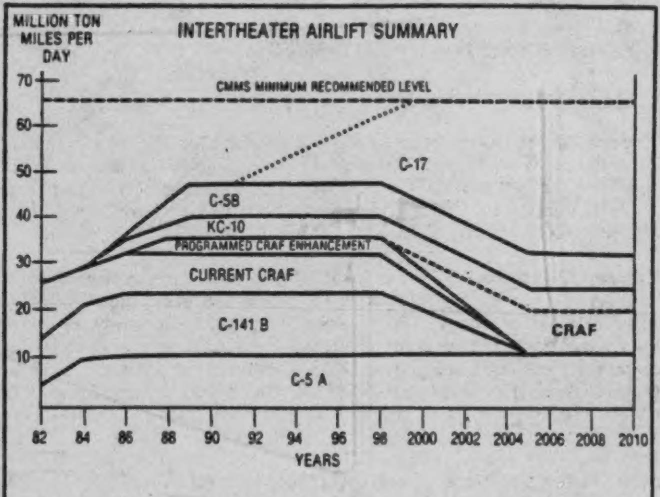


Figure 3

The Air Force program to redress our airlift shortfalls has three parallel courses of action: (i) more effective use of current assets, (ii) procurement of additional aircraft, and (iii) a revitalized CRAF Enhancement Program.

Improvements to Existing Airlift Assets. Our program to more effectively use our current assets includes the C-5 and C-130 wing modifications and capability enhancements such as additional spares, prepositioning, aerial port manning, material handling equipment, and pallets and nets.

C-5 Wing Modification. This modification will strengthen the wing structure and extend aircraft service life by 30,000 hours or well into the 21st century. The first aircraft is scheduled for delivery in March 1983 with the entire fleet completed by July 1987.

C-130B/E. The C-130B/E wing modifications correct wing fatigue and corrosion problems and also extend aircraft service life into the 21st century. Our FY 84 budget includes $61.5 million for this modification.

Capability Enhancements. The airlift spares program received significant funding increases in FY 81 and 82. The FY 83 and 84 programs provide continued funding for POS/WRSK/BLSS/OWRM spare parts to increase utilization rates for the C-5, C-141 and C-130 aircraft. Our FY 84 budget request includes funds for spare parts, increased manning authorizations, expanded aerial port capacities, and materiels handling equipment to reduce the shortages created by our improved airlift capabilities and increased wartime demands. We anticipate reaching full stockage levels by FY 88.

Expanded Airlift Capability. Our comprehensive airlift acquisition program calls for a mix of KC-10s, C-5Bs, and CRAF enhanced aircraft in the near term, and the purchase of C-17s for the long term modernization and expansion of the airlift force.

KC-10. Because of its long range and large fuel capacity, the KC-10 need not rely on en route basing, making it valuable for world-wide force deployments. When used as a cargo carrier, the KC-10 will alleviate some of our airlift shortfall. Our FY 84 budget requests $813 million for the purchase of eight KC-10s, spares, and long-lead items. (The KC-10 tanker capabilities are discussed in the air refueling section.)

C-5B. Acquiring 50 C-5Bs over the next five years will increase our intertheater outsize and oversize capability. The C-5B is the C-5A design updated with current engineering changes including a 30,000 hour wing, GE TF39-1C engines, improved avionics, and the use of more durable, corrosion-resistant alloys. Since the C-5B will be built primarily with the existing C-5A production base, no investment is required in RDT&E. Our FY 84 budget requests $1316.6 million for the purchase of four aircraft.

C-17. The C-17 is our next generation airlifter. It is a long range, air-refuelable, all-weather, four-engine, turbo-fan aircraft designed for the wartime airlift mission. In addition to increasing our outsize intertheater capability, the C-17 will also be an efficient outsize intratheater airlifter with the full spectrum of delivery modes: airland, airdrop (including outsize), low altitude parachute extraction (also outsize) and rapid combat offload. This capability along with direct delivery from the US to forward locations will give considerable flexibility to theater commanders and will reduce congestion at the main operating bases in-theater. With FY 84 funding we will continue C-17 development toward an FY 91 initial operating capability. The C-5B and C-17 schedules efficiently mesh, with C-17 deliveries directly following the last C-5B. This plan will continue the uninterrupted build of airlift capability toward the CMMS objective.

By phasing the program to obtain C-5Bs as soon as possible while continuing development of the C-17, we can more quickly address our current, critical need for additional outsized intertheater airlift. In addition to increasing our intertheater airlift and providing our first intratheater outsized airlift capability, the C-17 will be a suitable replacement for the C-130As retiring early in the next decade and for the C-141 when it begins to retire at the turn of the century.

CRAF Enhancement Program. A revitalized CRAF Enhancement Program will modify new or existing widebody commercial passenger aircraft by adding such features as a cargo door, stronger floor and a cargo roller system. These features will increase the capability of CRAF aircraft to convert to a cargo mode and to transport oversize and bulk cargo during emergencies. The Air Force will pay for the features and reimburse airlines for the extra operating costs of flying these heavier aircraft. The CRAF Enhancement Program will reduce the risk to the airlines, increase their participation, lower DoD costs, and increase our contingency airlift capability. We are requesting funds in FY 84 for opening the line and modifying three aircraft.

Other Airlift Programs. Our other airlift programs include the replacement of our C-140Bs and CT-39s.

C-140B and CT-39 Replacement. Our eleven C-140B transport aircraft are costly to operate. The 1950s vintage C-140B has high fuel consumption and requires expensive maintenance and difficult-to-obtain parts. Because of its limited passenger capacity and lack of coast-to-coast range, our other larger aircraft must often be inefficiently used for the C-140B mission. Congress has directed the phaseout of our C-140B fleet, and we are presently selecting a replacement aircraft. Funds for a replacement are included in our FY 84 request.

Our Operational Support Airlift fleet of CT-39s was acquired in the late 1950s and 1960s, is difficult and expensive to support, and requires replacement. Our proposed replacement strategy is to competitively contract for a five-year lease of a fleet of up to 120 jet or combination jet/turboprop aircraft. This contract will contain three additional lease option years and the Air Force right of first refusal to acquire the aircraft at the end of the lease period. These aircraft are a cost-effective way for the Air Force pilot force to gain experience while providing operational support airlift for the Air Force.

Aerial Refueling Capabilities and Requirements

Aerial refueling is a key force projection ingredient. Because of the wide variety and great number of users, the need for world-wide combat flexibility, and the growing political restrictions on landing and overflight rights, our aerial refueling needs have increased substantially. In addition, the number of Air Force air refuelable aircraft has increased approximately 500% since 1960.

The KC-135 was originally purchased to support our strategic bomber nuclear mission. Today our bombers require increased refueling support due to changes in mission profiles, tactics, and range degradation resulting from modifications. These requirements will increase further over the next few years due to increased drag caused by the external carriage of air launched cruise missiles.

In addition, our general purpose forces have increased the demand for aerial refueling. Today almost all deployments require air refueling, not only for fighters, but for transports hauling support equipment and people as well. In a crisis, with our limited tanker resources, we would have to divert tankers from the strategic mission to support our fighters and transports and accept nuclear force degradation at a time when this would be least acceptable.

KC-135R. Our 615 operational KC-135 tankers, purchased in the 1960s, are suffering serious obsolescence. The KC-135 modernization program replaces the obsolete J57 engine with the more powerful, fuel efficient CFM56 engine and updates or replaces 34 other systems. These changes, combined with the ongoing wing reskin modification, will allow the KC-135R to do the job of one-and-a half KC-135As and will extend service life well into the next century. The modification will increase thrust 60 per cent, decrease dependence on long runways, decrease fuel consumption 25 per cent, decrease maintenance costs and meet environmental standards.

In FY 82 and FY 83, Congress added funds to reengine KC-135s with JT3Ds and directed that the funds be used to reengine Air National Guard KC-135s. This program will increase the fuel offload capability in these aircraft by 18 per cent and will also reduce noise and pollution in urban areas.

KC-10. The KC-10 advanced tanker and cargo aircraft contributes to both intertheater air refueling and airlift. It can also refuel tactical aircraft during theater employment operations. The KC-10 is equipped with both a hose and drogue system and an improved refueling boom which provides higher flow rates, more flexibility, and increased safety. With its long range and high fuel offload capabilities, the KC-10 provides an important complementary and necessary force addition to the KC-135 tanker fleet.

Special Operations and Combat Rescue

The Soviet Union and its surrogates continue to promote revolutions world-wide. This Soviet support, combined with technological advances, economic dislocations, social change, and growing international interdependence will generate further increases in low level conflict.

The US will maintain special operations forces capable of conducting missions in every region of the world in which the US has vital interests. These forces may be employed under circumstances where the use of conventional forces would be premature, inappropriate, or infeasible in theater conflict. In peacetime, they can play a key role in assisting friendly nations that confront externally-supported, low-level subversion or insurgency. In a conflict, special operations forces must be capable of conducting the full range of special operations, including precise strategic operations and the destruction of key military targets.

Combat rescue forces provide the capability to extract downed crewmembers from enemy territory during hostilities. This capability saves lives, returns valuable crewmembers to the cockpit, denies the enemy a source of intelligence and propaganda, and boosts the morale of our crews in wartime.

The Air Force is planning to consolidate its Special Operations and Combat Rescue forces under the Military Airlift Command to increase combat capability to conduct and support special operations.

Equipment Acquisition. Our FY 84 funding will be used to modify existing HC-130, AC-130H and MC-130E aircraft and to purchase two MC-130Hs for special operations. In addition, 24 of the HH-60D helicopters being procured by the Air Force will go to Special Operations. A total buy of 243 HH-60Ds is planned to meet special operations and combat rescue requirements.

Joint Service Advanced Vertical Lift Aircraft (JVX). The Air Force will fund a portion of the Joint Service Advanced Vertical Lift Aircraft Development Program (JVX). The JVX is a long term DoD initiative to develop a common, advanced vertical take off and landing (VTOL) aircraft. The program will take advantage of emerging, advanced VTOL technology and promises to reduce total DoD costs through a common development program.

The JVX represents a substantial technological advancement in long term operational capability but does not lessen the near term Air Force requirement for the HH-60D. In the long term, adding the high speed, long range cruise efficiency and vertical lift characteristics of the JVX to programmed fixed and rotor wing inventories will achieve the full spectrum of capability needed to perform the world-wide special operations and combat rescue missions. We are requesting $14.4 million for our portion of the developmental funds required in FY 84.

IV. THEATER FORCES

An important element of our military power is the ability to meet conventional threats in many regions — Europe, Southwest Asia, the Pacific, and the Americas. In order to defend our national interests and the interests of our Allies, the Air Force needs to be able to respond to aggression in these and other regions at any level of conflict. Aggression may come from the Soviet Union, Soviet proxies, or other hostile countries. Potenticl combat environments range from a high-intensity Warsaw Pact offensive in Europe to a small-scale insurgency in a Third World country.

The tactical forces required to meet this challenge are a composite of many capabilities: fighter and reconnaissance aircraft, electronic combat forces, special operations forces, intratheater airlift, specialized command and control aircraft, and the conventional combat capability of our strategic bombers. These forces are trained and equipped to conduct the entire spectrum of tactical missions. In planning theater forces for the future, we need to ensure that they will be flexible — able to conduct the required mission, in any region, in order to meet our national objectives.

The necessity of maintaining, with our Allies, a credible defense against Soviet conventional forces provides the basic yardstick against which our requirements must be measured. Force requirements to provide that defense are driven by dramatic Soviet improvements in their capability to conduct theater warfare.

Soviet Force Developments

The Soviets have continued to expand and modernize their numerically superior tactical air force, a program that reached alarming proportions in the 1970s and shows no sign of abating. They have transformed their tactical air force from one consisting mainly of limited range, low payload, day fighters into a potent, long range, tactical air arm with increasing capability to operate in adverse weather. They are producing approximately 1300 capable, modern tactical fighters per year, while the US is procuring about 320 in FY 84. A new generation of Soviet fighter designs signifies a continued attempt to equal or exceed the combat capability of US and allied tactical aircraft.

The mobility and firepower of Soviet ground forces have improved greatly. A steady infusion of large numbers of new tanks, infantry fighting vehicles, self-propelled artillery, and attack helicopters has greatly increased the offensive power of the Soviet Union. To protect this force, the Soviets have fielded highly capable interceptors, air defense artillery, and an expanding family of surface-to-air missiles — all supported by a linked array of mobile and fixed radars.

The Tactical Challenge

In the event of European conflict, Warsaw Pact forces would attempt to seize the initiative by mounting a massive air and ground offensive. We would be confronted with armor-heavy ground forces assaulting allied lines at several points, backed by waves of reinforcing divisions and supported by intensive theater-wide air strikes. Special armor-heavy forces known as operational maneuver groups would attempt to penetrate or bypass our defensive strong points to strike deep into our rear areas. These forces would be supported by helicopter and attack aircraft. Soviet forces would most likely be attacking in other regions as well.

Because allied ground and air forces will be seriously outnumbered, and because the enemy will determine the time and place of aggression, we rely heavily on the firepower and flexibility of air power to deter and, if necessary, defeat a Soviet attack. We share our Army's enthusiasm for its evolving Air Land Battle doctrine, particularly the emphasis on offensive operations, maneuver warfare, and winning. We are working with the Army to resolve differences and ensure effective use of theater air resources.

In any conflict, our tactical air forces should be able to do two things: (1) quickly achieve air superiority so that our armies and air forces can fight and be reinforced free from the disruption of enemy air attacks and (2) provide critical offensive air support to our ground forces. Supporting US and allied ground forces will involve air attacks close to friendly forces and will require interdiction of Warsaw Pact ground forces and supplies. The range of potential conflicts is broad, and tactical airpower should possess the flexibility to meet any demand.

In the air-to-air role, our aircraft need to be able to detect and destroy numerically superior, sophisticated Soviet fighter and bomber formations. We require effective, autonomous search radars, a mix of weapons, avionics which facilitate weapons employment, and superior aircraft performance.

In the air-to-ground role our aircraft need to be able to evade and suppress enemy defenses. They should be able to deliver their munitions day or night in all weather conditions whenever and wherever Soviet forces are conducting offensive operations or are most vulnerable.

On any mission, our munitions are a critical part of weapons system capability. We need weapons that achieve higher effectiveness through accuracy and lethality while reducing our aircraft attrition. In particular, precision-guided munitions substantially reduce the cost of destroying a Soviet force — both in terms of sorties required and friendly losses.

Tactical Requirements

We plan to capitalize on our advantages in technology, tactics, and dedicated, well-trained people to maintain a combat-ready, flexible, tactical Air Force. Because of the growth in Soviet military power and the steady improvement in their combat capabilities, we need to continue to modernize and expand our tactical air forces while maintaining the sharp edge of readiness.

The Air Force faces a continuous challenge in striking a proper balance between modernizing tactical forces and maintaining combat readiness and sustainability within a constrained budget. We have made progress toward achieving that balance.

In working toward the goal of modern, combat-ready forces, we have several key objectives to guide our actions. In the area of readiness, we will continue to stress four things:

- Adequate spare parts, munitions, and other materiel to sustain the forces in combat;
- More and better flying training;
- Joint exercises and other realistic training; and

- Improved system reliability, leading to higher readiness and reduced maintenance costs.

Our modernization program emphasizes four key objectives:

- Building the capability to attack and destroy surface targets at night and in all weather conditions;
- Establishing efficient production rates for highly capable fighters — F-15s and F-16s;
- Improving the effectiveness of current tactical aircraft through better sensors, avionics, and weapons; and
- Developing tactical aircraft designed to meet the threat of the 90s.

These requirements are directly related to Soviet military capabilities. As Soviet combat power increases we need to adapt in order to preserve the survivability and capability of our forces.

To maintain an effective tactical air arm, the Air Force should continue to exploit the technological advantage that this nation possesses. We need to continue an aggressive research and development program while at the same time improving our current aircraft through evolutionary improvements and vigorously pursuing initiatives to upgrade combat readiness and sustainability.

As we modernize our forces, we need to ensure adequate force size. Our global commitments, and the strategy to meet those commitments, require that we plan forces for employment world-wide. These demands, compounded by the size and lethality of Soviet air and ground forces, dictate an increase in our tactical fighters to the interim goal of 40 tactical fighter wings and to a 44-wing level in the long term.

It will take about 300 new fighters each year to reach a force of 40 tactical fighter wings and support strategic defense and reconnaissance requirements. Current production rates are well below this level, and we need to increase fighter procurement in the near term. An insufficient rate of growth will increase the average age of the force.

Since budgetary and infrastructure constraints limit the alternatives available, we need to rely on a mix of aircraft to ensure we are able to meet our requirements across a wide spectrum of mission demands. Furthermore, the United States cannot do the job alone. We will continue to depend heavily on allied forces to help us maintain a credible and effective defense capability.

We have organized, equipped, and trained active and reserve components as a total force. Air Reserve Forces provide 66 per cent of our air defense interceptor capability, 54 per cent of tactical reconnaissance, and 34 per cent of tactical fighters. We work as a team to handle highly capable and numerically superior Soviet forces. We take advantage of common logistics, common training, and common equipment.

Tactical Modernization Programs

The rebuilding of our tactical forces since Vietnam has provided us with a very capable force. Maintaining two modern fighter production lines into the 90s will sustain this strength. The F-15 and F-16 are superior to anything in the Soviet inventory and with evolutionary improvements will remain so through this decade.

F-15. The F-15 Eagle is the best air-to-air fighter in the world today. Superior acceleration and maneuverability, avionics upgrades, a proven mix of weapons, better self-protection measures, and a beyond-visual-range identification system are some of the improvements that will permit the F-15 to retain its combat advantage.

We remain pleased with F-15 readiness as well. During surge exercises the system has consistently demonstrated the ability to reach the high sortie rates required during combat conditions. The F-15 C/D had the best fully mission capable rate in the tactical inventory in FY 81 and FY 82. The F-15 also has one of the best safety records of any fighter in history.

Our request this year for $2.1 billion supports a more efficient production rate of 48 in FY 84, building to 72 in FY 85. This increased production will better satisfy force structure air superiority requirements, maintain a balanced mix of F-15s and F-16s, and provide replacement aircraft for those F-15s converted to the air defense and anti-satellite missions.

F-16. The multi-mission F-16 Fighting Falcon continues to exceed our expectations. It has demonstrated superb performance in both the air-to-air and air-to-ground roles, meeting its programmed flying hour goals, sortie rates, and mission capable rates. The F-16 will keep pace with the threat through such improvements as beyond-visual-range missiles, advanced sensors, and better electronic warfare equipment. Continued support for the Multinational Staged Improvement Program to incorporate retrofit improvements and growth systems will ensure the continued effectiveness of the F-16.

The F-16 complements the F-15 in air superiority roles and supplements F-111s, F-4s, A-7s, and A-10s in ground attack roles. It has significantly improved the combat capability of not only our tactical forces, but that of our Allies and friends as well. The F-16 is now flown by eight air forces world-wide — ours, Belgium, Denmark, the Netherlands, Norway, Israel, Egypt and Pakistan.

The FY 84 request of $2.1 billion for 120 aircraft continues our four-year, multi-year procurement. Our buy of F-16s will replace aging F-4s, modernize the Air Reserve Forces, and provide modern fighters capable of performing a broad spectrum of tactical air warfare tasks.

Derivative Fighter. The most serious tactical force deficiency is our limited ability to operate in adverse weather conditions, day or night. Currently only the fully committed and aging F-111 has this capability. Derivatives of the F-15 and F-16 can partially correct this problem and provide significant improvements in range and payload while maintaining their proven air-to-air capability.

We are now in the process of evaluating potential improvements to the F-15 and F-16 to alleviate these pressing deficiencies. As a result of flight testing and analysis, we will determine the scope of modifications necessary based on criteria of combat capability and affordability. Improvements will be made within the programmed build of F-15s and F-16s.

Funds requested in FY 84 will be used to continue development of evolutionary systems as determined by the evaluations currently being conducted. Results of the comparative flight test program and appropriate recommendations will be presented to Congressional committees beginning in the summer of 1983 to support the FY 84 budget request of $126.1 million.

Derivative Engine. Over the next few years while our F-15 and F-16 fighter force is expanding, we have an opportunity to improve the durability, reliability, and life cycle costs of our fighter engines. Since there is currently only one manufacturer of high thrust fighter engines for the Air Force -- Pratt and Whitney -- our program to achieve these objectives is based on introducing competition by qualifying another manufacturer, General Electric.

The engines that will compete are the F110, a General Electric engine derived from the F101 (B-1 engine), and the F100, the engine used in the F-15 and F-16. In addition to funding full scale development of the F110 to qualify General Electric ($54.5 million in FY 83 and $68.5 million in FY 84), the Air Force is developing a digital electronic engine control, a new main fuel pump, and an increased life core to improve the Pratt & Whitney F100 ($70 million in FY 83 and $56 million in FY 84).

The engine competition is not being conducted because of any requirement for increased thrust. The thrust-to-weight ratio of each engine is roughly equivalent. The competition is based on durability, reliability, maintainability, life cycle costs, and operability characteristics as demonstrated in tests and supported by contractor warranties.

We are requesting $132 million in research and development funds in FY 84 for these efforts. Additionally $62.9 million in procurement funds will buy the long lead time hardware for the engine selected from the 1983 competition. Our intent is to periodically recompete these engines to make sure we get the most for our money.

LANTIRN. Since day visual weather conditions average only four and one-half hours per day during European winters, we need to provide our tactical aircraft with the capability to carry out their missions at night and in weather. Without such a capability we would be in the same situation we faced in December 1944 during the Battle of the Bulge when allied tactical airpower was unable to support ground units because of bad weather. Currently, only the F-111 has the capability to deliver large payloads effectively at long range, at night, and in adverse weather.

Development of the low altitude navigation and targeting infrared system for night (LANTIRN) will assist our F-16, A-10 and derivative fighters in penetrating enemy defenses at low altitude and in finding and destroying enemy targets at night and under the weather. LANTIRN can be the means to increase our sortie rate by 100 percent or more during winter months. The LANTIRN system consists of two pods, one for navigation and one for targeting.

We have requested $93.6 million in FY 84 to continue research and development of LANTIRN. We have prepared a plan to compete the LANTIRN targeting pod against the improved F/A-18 FLIR variant, and the plan will be implemented if Congress so directs and provides the necessary funding.

Advanced Tactical Fighter (ATF). By the early 1990s, our current fighter designs (F-15 and F-16) will be 20 years old and be approaching the limits of feasible modifications. A new generation of fighters will be needed at that time to meet expanded threat capabilities and world-wide mission needs and to take advantage of technical opportunities to accomplish the tactical warfare mission more efficiently.

To be prepared in the 90s, we need to work now to ensure ATF technologies are adequately developed. FY 84 funding of $37.4 million will support continued exploration of engine and airframe technology and concept development activities. Commitment to a specific design concept and full scale development funding will not occur until FY 87.

Munitions

Sufficient stocks of modern, effective munitions are essential to our warfighting capability. A large percentage of our munitions inventory consists of older, less-capable munitions. However, we have several new types of munitions which are now reaching the stockpiles. We need to continue our efforts to improve the quality and quantity of our munitions.

A complementary mix of direct delivery and standoff weapons offers flexibility in attacking a variety of fixed and moving targets and facilitates adjustment to enemy tactics. Standoff systems must have the capability to strike with a high degree of accuracy and destructiveness while offering the additional advantage of reduced exposure to enemy defenses. Direct delivery weapons provide high accuracy, direct man-in-the-loop employment, and relatively greater affordability. A proper mix of these systems gives us a broader envelope of lethality and greater force survivability.

Air-to-Air. In FY 84, we plan to buy AIM-7 radar-guided and AIM-9 infrared-guided missiles for our air-to-air weapons inventory. This will be the last year we procure the AIM-7 missile as the AIM-120, or Advanced Medium Range Air-to-Air Missile (AMRAAM), is being developed to augment it and counter Soviet force improvements.

AMRAAM bolsters the effectiveness of our air-to-air inventory because of its greater envelope, increased velocity, launch and maneuver employment capability, and capacity for multiple target attack. Our analyses show that AMRAAM will greatly increase our lethality against a numerically superior threat and reduce the vulnerability of our crews. FY 84 funding of $188.6 million will support continued AMRAAM development, including captive carry testing and initial test firings from the F-16, tooling test equipment, and advance procurement money for an FY 85 production start.

The Advanced Short Range Air-to-Air Missile (ASRAAM) will provide a next generation missile designed to augment the AIM-9L/M in the 1990s. Our recommendation on ASRAAM, which is being developed by the United Kingdom and Federal Republic of Germany, will be made after a complete review of missile cost, schedule, and performance.

Air-to-Surface. Significant progress in conventional weapon development and procurement will be made in FY 84. The increased capability provided by new submunitions and precision guidance will bolster existing and programmed force effectiveness. Future fielding of accurate standoff weapons with better range will further complement the survivability of our manned forces.

Offensive Air Support. It is crucial that our tactical forces be armed with munitions to destroy and disrupt the armored thrusts of Soviet ground forces. We are increasing our inventory of weapons through the procurement of IIR Maverick; GPU-5 30mm gun pod and ammunition; the Combined Effects Munition (CEM), a new cluster munition; and Gator, an anti-armor mine. Additionally, development of newer, potentially more effective anti-armor weapons is underway. Sensor Fused Weapon, a smart anti-armor submunition, and WASP, a mini-missile, will be in full-scale development in FY 84.

Airfield Attack and Interdiction of Fixed Targets. Currently our forces do not have the munitions to attack enemy airfields efficiently. However, we are making progress. Durandal, a French-built, rocket-assisted, runway cratering munition is a first step. We are procuring Durandal, initiating development of a new generation of weapons and submunitions, and studying various means of airfield attack.

Runway cratering submunitions are the most cost-effective means of closing takeoff and landing surfaces. Once these submunitions are developed and proven, they can be employed by a variety of delivery platforms — aircraft in direct attack; powered or freeflight dispensers which avoid point defenses; and long range, standoff weapons like the Medium Range Air-to-Surface Missile (MRASM). MRASM continues in full-scale development in FY 84.

Airfields contain a number of other fixed-point targets which, if destroyed, could degrade enemy sortie production. The first generation of precision-guided munitions greatly improved our ability to attack point targets both on airfields and throughout the enemy's rear area. In FY 84 we will increase our inventory of newer, more effective precision weapons with the procurement of the GBU-15 and the Low-Level Laser Guided Bomb. We will also initiate development of the Standoff Attack Weapon to provide greater standoff range.

Non-Strategic Nuclear Force (NSNF) Modernization

The key lesson of the World Wars is that our security is linked firmly with Western Europe's. We have peace in Western Europe because the NATO nations have freely joined together in an alliance strong enough to balance Soviet military power and deter Soviet aggression. If the US were to draw back from NATO, Europe would come under great pressure to accommodate Soviet military power and political intimidation. We and our Allies need to ensure the effectiveness of each part of our triad of forces — conventional, intermediate nuclear, and strategic nuclear.

The Soviets have deployed substantial numbers of SS-20 intermediate range nuclear missiles aimed at Western Europe. In face of these deployments, NATO nations have reaffirmed their December 1979 dual-track decision to deploy 464 ground launched cruise missiles (GLCMs) and 108 Pershing II launchers, while pursuing efforts to reduce the threat through arms negotiations. NATO has no comparable capability to counter Soviet intermediate range nuclear forces (the new SS-20s and the SS-4s and SS-5s deployed earlier). NATO nations have supported the United States' position at the intermediate range nuclear negotiations — to forego Alliance deployment of GLCMs and Pershing II missiles in return for the elimination of the Soviet systems. Unless a meaningful arms reduction agreement is reached, it is essential to proceed with deployment of the GLCMs and Pershing II. The deployment of these intermediate range nuclear forces in Europe, capable of reaching the Soviet homeland, will help strengthen deterrence by correcting the marked imbalance in capability between NATO and the Warsaw Pact. Such forces will also strengthen the linkage between NATO's conventional forces and our strategic forces.

Ground Launched Cruise Missile (GLCM). The GLCM program demonstrates NATO's commitment and resolve by offering a modern, credible deterrent to Soviet actions. Soviet propaganda efforts and continued European concern over the presence of nuclear weapons underscore the need to make clear the deterrent value of these weapons. As history has shown, weapons are less likely to be used when no doubt exists about the ability to retaliate. Therefore, until equitable and verifiable methods are found to eliminate such weapons, it is extremely important to demonstrate our willingness to move forward with the GLCM program.

GLCM gives the theater commander flexibility by allowing dual-capable fighter aircraft to be used in the conventional role and maintaining them in that status for a longer period before committing them to a nuclear role. Because of its mobility, low altitude flight profile, and small radar cross-section, GLCM has high potential for surviving and complicating the enemy's targeting and defense problems.

Since we reported the GLCM cost growth to $3.91 billion in June 82, we have lowered total program acquisition costs by scrubbing our requirements and establishing a memorandum of agreement for fixed price options for remaining transporter erector launchers and launch control centers. GLCM program schedule is on track for meeting the December 1983 initial operational capability in the United Kingdom.

The $616.7 million in FY 84 procurement funds will buy 120 weapon systems plus spare parts for this essential program. We are requesting $147.9 million to build facilities at the main operating bases to allow accompanied tours and an improved quality of life for our GLCM people overseas.

Tactical Command, Control, and Communications (C^3)

As in the strategic area, C^3 is vital for successful tactical operations. We rely heavily on C^3 to coordinate force element movements and intensify forces where needed. To accomplish our battlefield objectives, we need the ability to collect and process information efficiently.

As proven in the 1973 Mid-East war and through Air Force and NATO exercises, jam-resistant air-to-air and air-to-ground UHF and VHF communications are essential for effective command and control. FY 84 funding of $65.2 million for research and development of the advanced communication systems HAVE CLEAR, Improved HAVE QUICK, and SINCGARS-V will support fielding that capability.

Data communications are essential for passing large amounts of detailed information throughout the battlefield. The Joint Tactical Information Distribution System will provide jam-resistant, secure communications using a digital data link that allows command and control systems to exchange more information.

The Joint Surveillance and Target Attack Radar System (Joint STARS) is a new radar system that has the potential to offer an integrated approach to real-time detection and attack of second echelon targets. When combined with any of a variety of advanced weapons, Joint STARS offers the capability to see and strike deep.

We are working with the Marine Corps to develop Modular Control Equipment to upgrade the aging air surveillance and control components of the Tactical Air Control System (TACS). This joint program will enhance TACS survivability, mobility, and ability to handle the greatly increased C^3 workload required in a modern combat environment. Joining the Marines for this program will avoid research, development, test, and evaluation costs of about $40 million, allow an FY 86 initial operational capability, enhance Service interoperability, and reduce procurement and life cycle support costs.

Our E-3A Airborne Warning and Control System (AWACS) ensures positive, worldwide command and control of strategic air defense and tactical offensive operations. The E-3A provides mobile, survivable, jam-resistant, wide-area radar surveillance, along with highly sophisticated data processing, data relay, and communications capabilities. This system enables us to overcome the limitations and vulnerabilities of ground-based radars to counter the growing threat from low altitude air attack.

AWACS has proven its value by deploying to Saudi Arabia, Korea, Egypt, and Germany. We can maintain this track record by continuing our program to eliminate communications and console equipment shortfalls. In FY 84, $699 million is requested to maintain the existing AWACS program and fix our equipment problems. An additional $76.2 million is for long-lead funding to buy the first three of the 12 AWACS programmed for North American air defense. We are also contributing $112.1 million this year to the NATO AWACS program.

Electronic Combat

It is vital to the survivability and effectiveness of our forces that we be able to use the electromagnetic spectrum while denying it to the enemy. To accomplish this goal, we continue to emphasize posturing an effective electronic combat (EC) capability to counter, protect, and sustain operations in the enemy threat environment. The FY 84 budget includes funding for a mix of destructive and disruptive systems to suppress or destroy enemy radars; jammers; command, control, and communications nodes; and terminal threat weapon systems.

The F-4G Wild Weasel is an important near term lethal defense suppression system. When equipped with the AGM-88 high speed anti-radiation missile (HARM), it can destroy emitting enemy radar systems. Longer-term combat effectiveness will be enhanced by acquisition of the Precision Location Strike System (PLSS), which will accurately locate enemy targets in all weather conditions. Under PAVE TIGER, expendable mini-drones will supplement other destructive systems through attack and destruction of selected enemy targets.

In the disruptive area, the EF-111A is our only tactical support jamming system to counter enemy early warning, acquisition, and ground controlled intercept radars. The EC-130H (COMPASS CALL) aircraft will counter enemy command and control structures by targeting tactical communications nets. A ground-based system, COMFY CHALLENGE, will target airborne communication and radar systems.

Additionally, we are funding acquisition of improved self-protection systems and updates for existing systems. We are continuing major efforts to improve reliability, maintainability, and sustainability of our electronic systems.

Chemical Warfare

Soviet forces are using chemical weapons in Afghanistan. They are well-trained and equipped to conduct offensive chemical warfare (CW) operations. Based upon our intelligence information, the Russians are using chemical agents against those who have no defenses or means to retaliate.

Our CW program is designed to deter the Soviets from using this capability. The importance of this program cannot be overemphasized. Until we have a viable CW capability, our theater forces remain at risk.

We need to ensure our forces can survive and have the ability to sustain operations in and after a chemical attack. We do not have enough CW defensive equipment, and current equipment is so restrictive that it significantly reduces operational effectiveness. Our FY 84 request of $60 million is for new gas masks, improved protective gloves and clothing, advanced detection and warning systems, protective shelters, and new decontamination equipment.

As with nuclear weapons, deterrence of CW requires a viable retaliatory capability. Our present capability is limited due to a lack of a viable capability to engage and degrade deep targets with a persistent agent. We are also limited by an insufficient quantity of weapons. We must proceed with development and procurement of binary weapons such as the Bigeye chemical spray bomb. Binary weapons, which do not contain toxic substances until the components are mixed, give us the needed flexibility as well as required capability and safe handling characteristics we seek.

V. SPACE

The past two decades have witnessed the rapid growth of space technology. As our knowledge and understanding of this new field have expanded, applications have grown in proportion. Consequently, today the military services as well as the civilian segment of our nation rely heavily on space systems for communications, weather prediction, navigation and numerous other uses.

When the Soviet Sputnik satellite was launched in 1957, few observers would have dared guess where we would be today. Yet since then, men have walked on the moon, we have developed an extensive network of communications satellites capable of bringing live television into homes around the world, we have deployed weather satellites, and we are flying the space shuttle. There is little doubt that the next quarter-century of space development will produce even more exciting advances than those already achieved.

As in the 1920s, when we were just learning about the possible uses of air power, so, today, we are on the threshold of exploring uses of space. While some would like to see space as a "sanctuary," relatively free of military systems, history tells us that each time new opportunities present themselves, men exploit them to gain military advantage. Today, both we and the Soviets are largely dependent on spacecraft for warning, communications, and command and control of our forces world-wide. If this trend continues, and indications are that it will, then we need to be prepared to take full advantage of the opportunities space offers.

Soviet Threat

In addition to the obvious utility of space for many military missions, the extensive Soviet space program compels us to address space from this perspective. Over the past decade, the Soviets have launched three to four times as many satellites as we have. Seventy per cent of their space systems are dedicated to military missions, while another 15 per cent have both military and civil applications.

The Soviets have the world's only operational space weapon system, a co-orbital anti-satellite (ASAT) system which has been demonstrated and poses a threat to many of our important low altitude satellites, both civil and military. Their ASAT capability demonstrates the value Moscow places on space.

A wide variety of Soviet photographic, communications, navigation, and electronic intelligence systems are used to support Soviet military forces. Their extensive ground-based electronic warfare system has counterspace applications, and their high-energy laser technology program is tailored toward weapons applications.

The aggressive Soviet manned space program has a distinct military flavor with current and possible applications such as surveillance, targeting, on-orbit repair, and military-related research and development. Soviet cosmonauts have amassed 2600 man-days in space, compared to our 1000 man-days. Their most recent Salyut crew set a new record of 211 days for a continuously manned space station. The Soviet manned space effort is just one more indication of their acceptance of space as a routine operational medium.

The Soviets understand the current and potential uses of space and have an aggressive research and development program, which left unchecked could lead to military dominance in this importanf arena.

U.S. Military Use of Space

Considering the Soviet emphasis, it is vital that we continue to develop our space capabilities vigorously. Not only would it be dangerous to allow an imbalance to accrue, but today we have a technological edge in space systems, and we should capitalize on this advantage.

Recognizing the importance of space in our military posture, the Air Force has taken two significant steps toward ensuring that a coherent approach for the use of space is firmly established. First, we have developed and published military space doctrine to provide focus and direction in guiding the development of future space programs, systems and operational practices. Second, we have formed a new major command, Space Command, to pull together and coordinate the many elements that are involved in current space programs. These two actions are important steps toward making sure that the manner in which we use space as a medium will contribute positively to maintaining our national security.

Space Doctrine

The basic philosophy of the new space doctrine is to preserve free access to and transit through space for peaceful purposes for both military and civilian uses. To do this, forces must be maintained which are capable and ready. Then, if conflict becomes unavoidable, we will be prepared to use the force necessary to secure resolution at the lowest level and on terms favorable to the United States. Our basic military objectives in space as defined in the doctrine are:

a. To maintain freedom of space;

b. To increase effectiveness, readiness and survivability of military forces;

c. To protect the nation's resources from threats in, through and from space; and

d. To prevent space from being used as a sanctuary for aggressive systems by our enemies.

By meeting these objectives, we can ensure unrestricted use of space. But to do this, we must develop the proper surveillance, warning, and weapons systems along with the attendant operational procedures to use them effectively. The establishment of Space Command is an important step in this direction.

Space Command

In September 1982, Space Command was established at Colorado Springs, Colorado. It will improve operations by linking the operational user and the research and development teams that design, build and launch spacecraft. Space Command gives the Air Force an organization that can address the many challenges and take advantage of the opportunities of space.

In a related change, three Air Force laboratories were consolidated under one organization. The Air Force Geophysics Laboratory, the Air Force Rocket Propulsion Laboratory, and the Air Force Weapons Laboratory now report to the newly formed Space Technology Center at Kirtland AFB, New Mexico. The Space Technology Center is an element of Systems Command's Space Division. This move consolidates and provides focus for space-related research and development.

Space Command currently has operational responsibility for two satellite systems: the Satellite Early Warning System and the Defense Meteorological Satellite Program. Space Command will also be the operational command for the Consolidated Space Operations Center (CSOC) to be built in Colorado Springs, Colorado.

The CSOC will combine satellite control capabilities and DoD Shuttle operations in a single facility, providing increased capacity and redundant control. This will increase the survivability of our satellite control network. Shuttle control activity at the CSOC will be sized to accommodate the planned increases in use of the Space Shuttle in support of DoD missions.

The two major elements of the CSOC are a Satellite Operations Complex (SOC) which will share the satellite control workload with the Satellite Test Center (STC) at Sunnyvale, California; and a Shuttle Operations and Planning Complex (SOPC) which will have capabilities similar to those of the NASA Shuttle Control Complex at the Johnson Space Center, Texas. An additional responsibility not shared by these other facilities will be the conduct of flight planning, readiness, and control operations for military missions.

Besides augmenting present control capacities, single-point vulnerabilities will be eliminated when the CSOC and the Johnson Space Center provide mutual backup for Shuttle control. The CSOC and the STC will provide mutual backup for satellite control as well. There will be a close operational linkage between CSOC and the Space Defense Operations Center (SPADOC) in Cheyenne Mountain, Colorado. SPADOC will provide CSOC with threat assessments and advice on countermeasures.

Force Improvement Initiatives

We are improving the ability of space systems to enhance the effectiveness of land, sea, and air forces.

Increased Effectiveness. Existing ground based systems including SPACETRACK electro-optical sensors and radars are being upgraded to provide more timely and accurate data. At the same time, we are pursuing new systems to further improve our surveillance capabilities. One example is the space-based long wavelength infrared surveillance system now under consideration. We have completed a Space Surveillance Architecture Study to guide acquisition decisions through the turn of the century.

Space-based communications systems are vitally important to command and control of terrestrial forces. The Defense Satellite Communication System (DSCS) provides the bulk of our long haul communications, and we are now deploying DSCS III satellites, which are more survivable. The Milstar program will provide world-wide survivable communications for both strategic and tactical users.

Other force enhancement initiatives include the Defense Meteorological Satellite Program (DMSP) and the Global Positioning System (GPS). DMSP provides meteorological data to users throughout the DoD, including Navy ships. GPS will provide world-wide navigation capability for military and civilian use. It will furnish location accuracy far superior to that of current systems, thus allowing precise en route navigation and a better ability to deliver weapons precisely in all weather conditions.

Survivability. Programs to improve the survivability of all components of our space systems--the spacecraft, ground facilities, and data links -- are being actively pursued. Comprehensive measures are now being taken to ensure that space systems will be able to continue operations for as long as the forces they support need them. These survivability measures add weight to satellites, entail a degree of technical risk, and add to costs. Nonetheless, the existing and projected threat demands that the US embark on an integrated and balanced program to prevent loss of critical space capabilities.

Anti-Satellite (ASAT). The Air Force is pursuing development of an ASAT system. This is required to negate Soviet space systems that threaten the effectiveness of our sea, land, and aerospace forces and to deter Soviet first use of their demonstrated ASAT capability.

The ASAT will be a missile launched from a modified F-15. Supporting C^3 and surveillance capabilities are critical to ASAT operations and are also being developed and improved. In FY 84, we are requesting $205.6 million for development and testing and $108.4 million for C^3 and surveillance enhancements.

Space Launch. Current space launch systems for military payloads include the Space Transportation System (STS) and expendable launch vehicles (ELVs). The STS is composed of the Space Shuttle, associated upper stages and related facilities (including mission control and launch sites). The STS is a vital element of the US space program and is the primary space launch system for both national security and civil missions. The Air Force, as the DoD executive agent for the STS, is developing the Inertial Upper Stage (IUS), and the West Coast Launch and Landing Site at Vandenberg AFB, California. Additionally, a joint development program is underway with NASA for a common Centaur G upper stage which will boost payloads that exceed the capacity of the IUS into high energy orbits.

Since the STS is the nation's primary launch system, the DoD is phasing out ELVs; accordingly, our FY 84 budget request does not include funds to continue production of the Titan III-34D. We are, however, acquiring a limited number of Titans through FY 83 to provide backup to the Shuttle. These vehicles have been programmed to support DoD missions through FY 85 at Cape Canaveral AFS and through FY 87 at Vandenberg AFB in the event of Shuttle delays or fleet grounding.

Air Force funding for STS development and acquisition is $609.2 million in FY 84. An additional $535 million has been requested to fund Shuttle operations, including the West Coast Launch and Landing Site at Vandenberg, IUS procurement and operations, Orbiter Flight Charge reimbursements to NASA, and other Shuttle operating costs.

While the STS will be our primary peacetime launch system, we are also examining future military requirements for access to space. The Advanced Military Spaceflight Capability (AMSC) program will examine the technologies necessary to provide access to space in a flexible, responsive, and survivable manner. FY 84 funding for AMSC is $2.8 million.

Space Weapons Technology. The Air Force has structured a program to address and resolve uncertainties in space-based laser weapon system mission utility, design and survivability, technical feasibility, and cost effectiveness. This program is an integral and necessary part of the DoD Space Laser Program, and will provide the basis for an informed decision in the late 1980s on proceeding with space-based laser weapon system development. We are requesting $36.1 million in FY 84 to work on resolution of laser technical and operational issues.

Particle beam technology is in the early phases of research and exploratory development. The Air Force is participating with the Army and the Navy in the DARPA-coordinated DoD Particle Beam Technology Program. Air Force laboratories are conducting basic research and exploration in particle beam accelerators, propagation, target effects, and power generation and conditioning. FY 84 funding requested is about $5 million.

Space Challenge

The development of military space doctrine and the establishment of the Space Command are visible milestones signalling a mature and growing Air Force operational involvement in space, consistent with national policy. However, the tasks ahead are many and they include:

- Further development of the Space Shuttle to provide routine, frequent, and reliable access to space for both military and civilian users;
- Development of improved upper stage propulsion units which can place Shuttle payloads into higher orbits;
- Continued upgrade of our space surveillance capability;
- Continued development of an ASAT capability to deny Soviet use of their space systems in conflict and as a deterrent against hostile actions in space;
- Effective training for the people who must operate and maintain increasingly advanced and complex space systems;
- Enhancement of the defensive capability of our on-orbit systems as well as the support necessary for their employment; and
- Maintenance of an environment that will permit exploitation of new technologies.

It is in our interest to continue to capitalize on efficiencies and advantages of peaceful military and civilian space operations.

VI. INSTALLATIONS

Our near term combat capability is tied to a large degree to the funds provided in the operation and maintenance (O&M) appropriations. Our O&M funding shortages in the mid- to late-1970s resulted in a deteriorated physical plant and increased backlogs in equipment and facility maintenance. Recent congressional actions have gone a long way toward reversing previous years' problems; however, we have by no means solved the problems concerning the current condition of our installations and today's facilities maintenance and repair backlog.

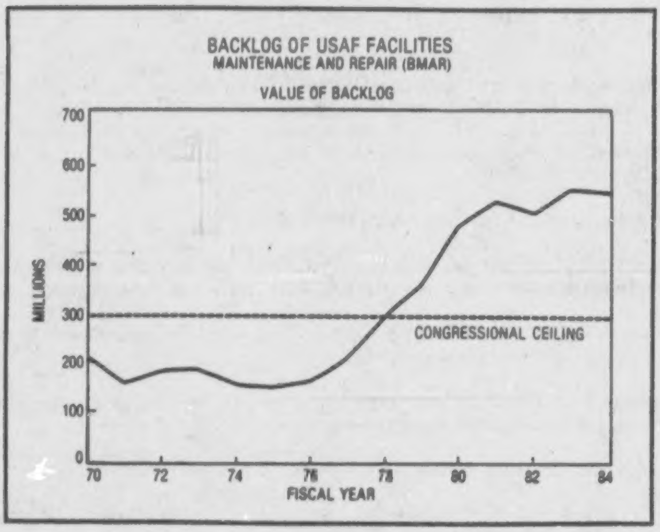


Figure 4

Figure 4 portrays the dollar amount of the maintenance and repair backlog since 1970. The upward backlog trend is caused by a combination of aging facilities and failure to keep pace with needed repairs.

Real Property Maintenance

Based on known requirements, available funding, and estimated inflation rates, we believe the FY 84 budget request will enable us to make some reduction in the backlog of maintenance and repair (BMAR). However, there are insufficient O&M resources to satisfy Congressional guidance to contain BMAR below $300 million.

Approximately 13 per cent of the O&M budget is spent for maintenance of real property of physical plant and other civil engineering activities. Our physical plant is the supporting structure for readiness, maintenance hangars, aircraft shelters, runways, missile facilities, and other mission critical facilities.

Since 1960 we have reduced our base structure by 47 per cent from 253 to 134 major installations. The result is a streamlined, mission-oriented, efficient and responsive base structure. We anticipate no major changes in this structure in the future, except for those facilities required to accommodate the GLCM beddown in Europe and the USCENTCOM in Southwest Asia.

During the decade of the 80s we must concentrate on the modernization of our facilities to bring them up to a level consistent with the needs of our modern weapon systems and the people who operate and support those systems. At present, many of our facilities are in substandard condition, particularly in overseas areas.

The replacement value of our facilities is in excess of $103 billion in constant FY 83 dollars and the average age is 26-30 years, with about half of them greater than 25 years old as shown in Figure 5.

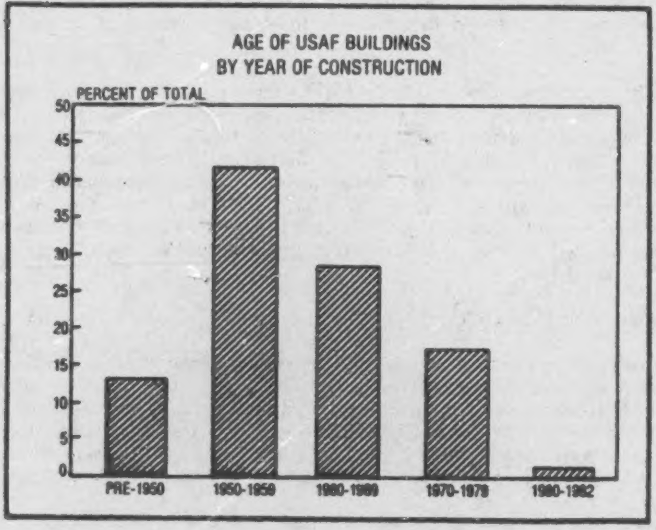


Figure 5

Many of our facilities were constructed for short term support of World War II and Korean war efforts. The design life of many facilities has been exhausted at the 25-year point, and major capital investment is needed for maintenance and repair. We need to do more than "patch" what we have and make do for another year.

Military Construction Program (MCP)

The MCP funds new facilities to support new missions and replacement facilities to support existing missions. Our MCP request is broken down into five categories based on the function supported.

	$ Millions		
	FY 82	FY 83	FY 84
Systems Acquisition	442	492	1017
Readiness	290	220	329
Quality of Life*	327	368	500
Upgrading the Workplace	248	475	460
Planning Design, Unspecified Minor Construction	350	107	166
Total	1657	1662	2472

*Includes military family housing construction

The systems acquisition category contains major FY 84 investments in support of Peacekeeper, Space Transportation System, Space Command, and ground launched cruise missiles.

The readiness category includes beddown facilities for USCENTCOM in Southwest Asia and various operational facilities in Europe and the Pacific, such as aircraft shelters, munitions storage and fuel storage to include support of collocated operating bases.

The next two categories -- quality of life and upgrading the workplace -- contain the majority of the facilities where our people live, work, and play such as dormitories, family housing, maintenance shops, and gymnasiums. The last category contains resources to design all types of projects. Since 1975, insufficient funds have been available for these categories after higher priority systems acquisition and readiness projects have been satisfied. Therefore, a $7.5 billion backlog of projects developed. Our facility modernization, begun in 1982, will attempt to reverse this trend. Through this initiative we will reduce our backlog of modernization projects to a manageable level of $2 billion by 1988.

Collocated Operating Bases (COBs)

These are our active allied military bases in Europe that would beddown USAF aircraft during an exercise, crisis, or war. COBs are essential because our existing airfields in Europe would be unable to accommodate the needed numbers of reinforcement aircraft. Without COBs, our main and standby NATO operating bases would become severely overcrowded, placing in doubt our ability to deploy and beddown aircraft from the US in support of NATO.

Our European Allies have agreed to allow joint use in wartime of their airfields, including maintenance facilities, dining halls, warehouses, and dormitories. We consider COBs as being very cost-efficient for the Air Force; however, the construction of some minimum essential facilities (MEF) to provide adequate support is necessary. The minimum essential facilities for each COB include seven days storage capability for POL and ammunition as well as expanded, dispersed pavement for parking aircraft.

At this time only a few of the identified COBs have complete MEFs. Our FY 84 request includes $44.1 million to finance our minimum essential facilities program for nine additional bases. These facilities, coupled with the facilities we expect to realize from NATO, represent the absolute minimum we need in order to effectively beddown our reinforcement aircraft.

The FY 84 budget also includes $66.7 million for a new initiative to develop COBs in Turkey. This program resulted from recent negotiations with the Government of Turkey and will provide access to previously unavailable beddown locations in NATO's southern region. This greatly strengthens our capability to respond to a European contingency.

Host Nation Support (HNS)

Our goal with wartime HNS agreements is to ensure the availability of critical wartime logistic support for forward-deployed and reinforcing US forces without further straining our lift and support resources. HNS enhances combat readiness by reducing the requirement for deployment of US combat service support units.

Assured allied HNS complements and increases our combat capability through Allied involvement and burdensharing. We seek to increase assured host nation contributions for support of our combat forces where it is militarily prudent and politically feasible. In NATO, some degree of wartime HNS will be provided by agreement with Belgium, the Netherlands, Luxembourg, the United Kingdom, the Federal Republic of Germany (FRG), Norway, Denmark, and Italy.

Recently, the US and FRG signed a Wartime HNS Agreement that entails the creation of new units in the Bundeswehr Reserve which, upon mobilization, would be dedicated to the wartime logistic support of US combat forces. We will receive approximately 27,000 German support personnel (out of a total of 93,000) for airbase security, airfield damage repair, COB augmentation, and medical evacuation.

Military Family Housing

Underfunding of the military family housing account during the late 1970s coupled with new mission activations, principally in Europe, left us with huge backlogs of maintenance, improvement, and new construction. These backlogs have a direct affect on quality of life, force morale, and retainability which adversely impact readiness. Our budget through the 1980s addresses objectives to reverse this problem. Some reductions in these backlogs were achieved in FY 82 with somewhat larger reductions projected for FY 83. Our FY 84 program remains consistent with Congressional stewardship concerns and DoD working and living conditions initiatives; however, we are generally projecting a slower rate of backlog reduction.

Key objectives include elimination of the improvements backlog, the reduction of the maintenance backlog to a manageable level, and a 75 per cent reduction in the 15,000-unit deficit of new housing by FY 90. A combination of improvement and maintenance monies is being used to modernize the aging (most 25 years or older) inventory of 140,000 houses. In addition, too many of our people are at present unsuitably housed in private sector housing, especially overseas. The lack of available government quarters in these areas forces this situation on our people. Our goal is to provide an adequate place for our people to live world-wide, which is essential as we continue the All Volunteer Force.

VII. MANAGEMENT

Effective, aggressive, and economical programs are always important to the Air Force and the public it serves, but they are critical at this time. Due to the state of our economy, our country and its citizens do face painful tradeoffs. We continue our commitment to the most cost-effective use of every defense dollar. This is due not only to increasing pressure for better management of all governmental activities, but, as Figure 6 depicts, our share of the gross national product has declined since the early 1950s. During this same period our taskings to provide global deterrence have increased. There has been a reversal of this trend during the current administration.

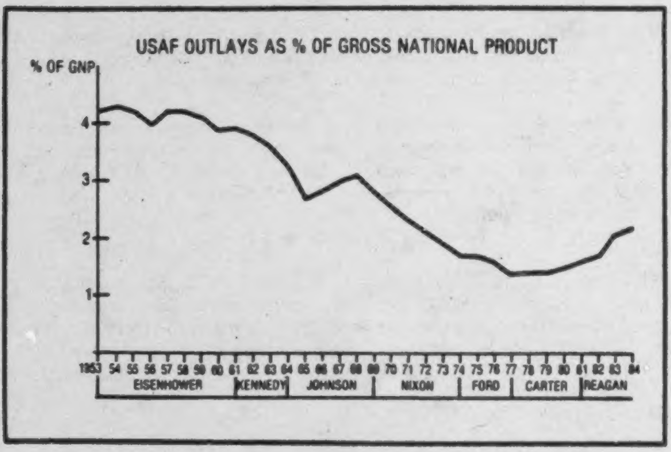


Figure 6

Technology Base (Tech Base)

Tech Base is our source of new knowledge and ideas underlying future military capabilities. It is used in developing technology options for meeting system requirements, providing mature technologies for systems development and for supporting operational systems. Tech Base programs cover the entire range of relevant technologies in materiels, propulsion, flight vehicles, electronics, weaponry, environment, space and people. We pursue these programs through a cooperative network of Defense Department, other government agency, industry and university scientific and engineering personnel.

Historically, we have relied on technological, rather than numerical advantage to maintain the superiority of our weapon systems over Soviet systems. Investments in Tech Base have contributed directly to the evolutionary and revolutionary growth in our military capability. The qualitative advantage of our present combat capability over that of the Soviets is a direct consequence of the Tech Base investments we made ten to twenty years ago.

Our current qualitative advantage is eroding because of several factors: between 1972 and 1981 the Soviets invested some $135 billion more than we did in military research, development, test and evaluation; because of the effects of inflation, the buying power of our investments in research and exploratory development declined by 40 per cent; the Soviets have been graduating four to five times more engineers and scientists than the US; and through overt and covert means the Soviets have been exploiting Western technology for use in their expanding military forces. Recent trends show a shift to the Soviets in an increasing number of technologies such as charged particle beams and high energy laser, chemical warfare, anti-satellite and others. The Soviets already have the quantitative advantage — we cannot allow them to gain a qualitative edge as well.

We are taking several actions to counter this shift and maintain our technological and qualitative edge. First, in FY 84 we are requesting three per cent real growth in our Tech Base program and expect to continue this modest increase over the next several years. Second, we are developing career incentives to attract and retain a sufficient number of scientific and career officers including monetary stipends for officers in critical specialties, such as engineering. Third, to derive the greatest return on the dollars we invest, we are initiating several management actions such as assigning Air Force laboratories to the product divisions for improved technology transition. We are also working within the DoD to identify future technologies to support next generation military systems, and are studying new approaches to Tech Base management within the Air Force.

Integrity and Management Improvement Program

In support of the Administration's efforts to improve productivity and realize greater economies and efficiencies in defense operations, the Air Force has undertaken a range of initiatives under our Integrity and Management Improvement Program. This program is serving as an umbrella for many existing oversight, cost awareness, and incentive programs, and will add new management emphasis to obtain efficiencies at all levels of the Air Force. The goal of our program is to produce the most effective combat ready force possible at least cost.

Fraud, Waste, and Abuse (FWA). The purpose of this program is to minimize the diversion of funds and resources from defense to illegal, unauthorized or wasteful purposes. The primary focus is on prevention before the resources are lost. To enhance the prevention aspect of the program and to provide an open channel for anyone observing instances of FWA, a "hotline" has been functioning since August 1981. The hotline has been used to bring observed FWA abuses to the attention of Air Force leadership and investigative agencies quickly and with a minimum of effort by observers of FWA.

In addition, we utilize our audit, investigative, and inspection resources as tools to concentrate our efforts on prevention and detection of FWA. This is a comprehensive campaign involving the Air Force Inspector General, Air Force Audit Agency, and the Air Force Office of Special Investigations.

The FWA program is a viable, ongoing effort. During FY 82, the Air Force conducted a total of 1718 audits, 1358 inspections, and 3053 fraud-related investigations. We referred 257 fraud-related cases for prosecution or other action.

The program's intangible benefits include numerous regulation changes, pricing error corrections, policy revisions, etc., all designed to accomplish the Air Force mission in a more efficient, cost-effective manner.

Acquisition Initiatives. As part of the overall DoD program to improve the weapon system acquisition process, the Air Force has developed specific actions which will result in significant savings in new weapon systems. These actions are in four main categories: reducing acquisition costs, shortening acquisition time, improving selection and management processes, and improving support and readiness. The success of these actions will be a time consuming process that will require the continued support of industry, DoD, and the Congress.

In addition, we are pursuing several internal initiatives to get us back to basics.

- Each major program needs to have a formal baseline properly established that becomes a contract between HQ USAF and the field organizations. Any changes made to the contract will be made in a disciplined, formal manner through the program management directive.

- In an effort to establish program stability, we plan to continue our efforts to eliminate two separate cycles of POM and budget. Decisions should be made on time and not revisited continually. Major programs should be approved for at least three years.

- We need to continue to pursue multiyear contracts where it makes sense. In an effort to capture recurring savings, we should seriously concentrate on consumables, such as spares and munitions. These same items should be exploited for second source procurement. Increased use of multiyear and multi-source procurements should be the major thrust in the spares and munitions areas in the future.

Multiyear Contracting (MYC). Multiyear contracting when properly applied can produce substantial dollar savings. This is an important technique being used on low risk programs already in production. The primary benefits derived from MYC are the savings generated from the contractors' ability to take advantage of a more economical lot buy quantity of end items and necessary components, parts and material. This type of contracting can produce significant savings when compared to year-to-year contracting practices. In addition, multiyear contracts contribute to industrial base stability as it maintains production capacity, particularly in second and third-tier companies. The application and usefulness of MYC are highly dependent upon the commitment of the required up-front funding.

We are currently using the multiyear procurement strategy for the F-16, KC-10, TRC-170 Troposcatter Radio, Defense Support Program and the NAVSTAR Global Positioning System. For FY 84 we are proposing B-1B, F-15, KC-135 Reengining, and the Communications Nodal Control Element for MYC.

Defense Industrial Base

Defense industrial base responsiveness is essential for acquisition and replenishment of war fighting equipment and material. The defense industrial base has deteriorated significantly over the past two decades. The impact on the Air Force mission and its war fighting capability is considerable. High costs of hardware limit the force structure that we can afford; the ability of the industrial base to surge in response to a possible emergency is, at best, questionable; and today's defense industrial base lacks the ability to sustain wartime production rates.

One key to improving this base is the engineering of new manufacturing methods to provide more effective and efficient production and to make production of new hardware possible. For various reasons, it is often not to industry's advantage to take the technical risk involved; and often when it is, industry will not be able to provide the new capabilities in time to meet Air Force needs.

The Air Force has long recognized this and has invested resources to maintain and improve our Government-owned, Contractor-operated (GOCO) facilities and to encourage advancement of manufacturing capability through the Manufacturing Technology (MANTECH) program. MANTECH is a discrete, contracted effort to provide a specific manufacturing method, procedure, or technique improvement or capability.

Payoff for the Air Force includes reduced life cycle costs, reduced acquisition lead times, and increased industrial capacity to meet Air Force requirements and emergencies. In order to obtain the widest possible benefit from our investments, the new Technology Modernization (Tech Mod) initiative encourages contractor capital investment where it will return the most direct benefit to our weapons systems. Both the MANTECH and Tech Mod programs return, on the average, over $5 for every $1 invested.

Contracting Out

The Air Force has long considered the contract alternative a viable and efficient means of accomplishing work. As a result, the Air Force has progressed further in contracting for commercial services than the other Services and DoD agencies — approximately 80,000 contract manyears, which equals 23 per cent of the Air Force civilian work force.

This aggressive approach has brought the Air Force to a level of contracting out at which national defense considerations become overriding — future large scale contracting out could degrade readiness and the ability to respond to wartime exigencies. Therefore, we discourage the use of contracting out quotas, while supporting a moderate contracting out program. This program would be designed to critically examine each activity according to its wartime role before certifying it eligible for contract. Each Service needs to have the prerogative of determining whether an activity is eligible for contract, considering the proper in-house manpower mix necessary to maintain readiness and respond to its wartime tasking.

VIII. OUR PEOPLE

Air Force people are the foundation of our warfighting and readiness capability. The need for high quality, trained and experienced people crosses all mission areas and programs. Strong and modern strategic nuclear forces, improved readiness and sustainability, enhanced mobility forces and more modern tactical forces give the Air Force the hardware--the tools it needs to carry out the mission. However, our people give life to those systems and as history has shown, ultimately determine the course of battle.

Rear Admiral John Woodward, Commander of the British Naval Task Force, attributed the success of their recent operations in the South Atlantic to "a flexibility of mind and equipment." The British were faced with the challenge of conducting a war in an improbable place, under severe weather conditions, and against an unexpected foe. To meet the challenge, they had to fight with the men and equipment they had on hand.

We, in the United States Air Force, could be faced with similar challenges -- it has happened before. We have to make the best use of the forces we have. All too often we are conditioned to wait for the "magic weapon" that is right around the corner. In reality, our "magic weapon" is our people -- people who are well-trained, who seek and practice innovative tactics, and who apply our country's technological advantages.

The Air Force requires high quality people with technically oriented skills. During the past year we have been successful in recruiting and retaining these types of individuals; however, it is important that this success is not misread. Internal leadership efforts, adequate recruiting resources, high unemployment rates, resurging patriotism and significant pay increases provided by Congress in FY 81 and 82 all played a part.

Nevertheless, we must not ignore the lessons of the past. The current situation is reminiscent of one we witnessed in 1975, immediately prior to the worst military manpower crisis since the advent of the All Volunteer Force. In that year we faced an economic downturn with high unemployment and a pay cap brought on by public pressure to reduce government and defense spending. This situation was followed by a strong economic recovery, two years of pay raise allocations and two additional pay caps in 1978 and 1979. The result -- all Services failed to meet their recruiting goals, and the Air Force missed its enlisted recruiting goal for the first time in the history of the All Volunteer Force.

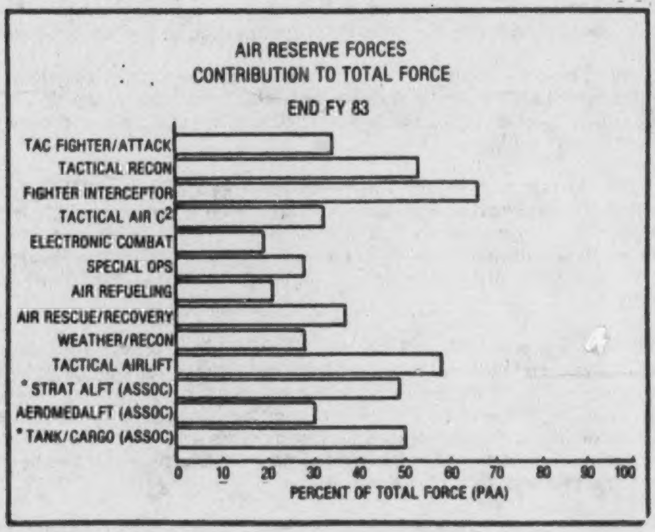
All Services suffered alarming losses of experienced career personnel including pilots, navigators, engineers, and enlisted personnel in critical skills. Avoiding a recurrence of the "people problems" of the 70s and sustaining our current recruiting and retention successes will continue to be a challenge facing the Air Force. We must, therefore, take care of our people by providing them adequate compensation and entitlements -- they in return will assure that we have a trained and motivated combat capability.

Total Force

All active duty, civilian, and reserve components contribute to the Total Force. We organize, equip, and train active and reserve forces as a team. By working together, we are building the warfighting capability our nation needs to deter our enemies and, when called upon, to fight and win.

Nearly 20 per cent of the Total Force is made up of civilians. This work force provides an essential element of continuity, stability, corporate memory, and expertise. Active duty military forces are assigned to combat and to direct combat support missions, while full-time civilians are assigned to essential support functions. Together, the military and civilian components satisfy the requirements for deterrence, peacetime presence, and immediate response in a crisis contingency, national emergency, or war.

Our Air Reserve Force components, the Air National Guard and Air Force Reserve, are an integral part of the Total Force. These "civilian airmen" provide a ready, highly experienced augmentation force. The high quality of these individuals and an ongoing emphasis on combat readiness and sustainability contribute greatly to the capabilities the Air Reserve Forces provide in support of the Air Force mission. The Air National Guard and Air Force Reserve, with approximately 15 per cent of Total Force people, contribute to nearly 25 per cent of all Air Force flying and support missions and in some areas provide more than half the total mission capability (see Figure 7).



* Represents percentage of aircrews

Figure 7

Manpower Requirements. We are continuing the growth of our active end-strength and, where appropriate, the Air Reserve Forces are sharing this growth proportionately. These increases are necessary to support, operate, maintain and train for the modernization and expansion of our forces. Readiness initiatives require more people to support our wartime prepositioned equipment and air base ground defense. These military manpower increases are partially offset by reductions associated with the retirement of the Titan II and cuts in the Joint Surveillance System (JSS).

Civilian end-strengths remain constrained but reflect higher levels than last year. These increases occur primarily in the logistics area in support of additional flying hours and better use of plant capacity and surge capability in the maintenance depots. Increases in several support functions reflect a change in accounting procedures associated with the contracting out program.

Our manpower requirements are based on a balance of civilian personnel and active and Reserve military with the proper mix of skills and experience both to accomplish peacetime training and to meet wartime combat requirements. The manpower requested in the FY 84 budget is the result of a rigorous prioritization of scarce resources; however, it still falls short of needed levels in various skills and specialties.

Recruitment. The Air Force is committed to the All Volunteer Force as a means of meeting our manning requirements. Thanks to strong Congressional support in the past few years and because of a depressed economy, we are meeting most of our recruiting and retention goals. However, the situation remains fragile and can reverse.

While our present manning forecasts are much more promising than they were in previous years, shortages in critical areas persist. Specifically, we do not have enough pilots, navigators, engineers, physicians in critical specialities, and non-commissioned officers in particular skills.

An upturn in the economy or failure to provide adequate recruiting resources and military pay and compensation comparable to the private sector could hamper our ability to attract high quality people. This problem could become even more acute as the 18-year-old youth population declines in the coming years and as the Services face stiffer competition for high quality high school diploma graduates to fill private sector job requirements.

Women are an important part of the All Volunteer Force. The Air Force has few areas in which women cannot serve and has the highest female representation of any Service. Women will have increased from 2.3 per cent of our total active force in FY 72 to 11.3 per cent by the end of FY 84. Women are now serving as pilots, navigators, missile launch officers, flight engineers, loadmasters and throughout the maintenance and support areas. In addition, for the first time a female reservist has been selected for promotion to the grade of brigadier general.

To meet our future manpower requirements, we need to continue to attract and retain high quality volunteers. The task will not be easy. Congressional leadership will continue to perform a critical role by providing resources and influencing public attitudes toward national defense and the opportunities the military offers young people. This support is fundamental to maintaining the effectiveness, dignity, and status of the armed forces.

Retention. Retention of high quality, trained, and experienced people remains our top priority. It is the key to Air Force combat capability. As we continue to expand the force, extraordinary retention will be needed to meet new supervisory requirements and close the experience gaps that developed in the late 1970s. Additionally, we need to be ready on a continuing basis since lengthy flying and technical training requirements preclude all but a limited force expansion in crisis situations. We can no longer rely on the luxury of having time to prepare.

As we look to the future we will be confronted by serious challenges in meeting our manpower needs. With economic recovery, increased competition from the private sector for our high quality people can be expected. This competition will have an impact on our ability to attract and retain quality skilled people, particularly those in technically-oriented fields most critical to Air Force needs.

Military Compensation. Military pay must be reasonably comparable to the private sector if the Air Force hopes to compete for quality volunteers and retain an experienced military force.

The 1980 and 1981 pay raises were key factors contributing to the dramatic improvements in recruiting and retention. For the first time in a decade, military members saw their pay essentially restored to the relative level of comparability with the private sector that had existed at the advent of the All Volunteer Force. To continue positive recruiting and retention trends, we need to implement a predictable, visible, easily understood, stable pay adjustment mechanism and assure military members that their pay will bear a reasonable relationship to pay in the private sector.

While the military compensation system is founded on providing military members a reasonable standard of living, it is also designed to help instill vital institutional values -- cohesiveness, esprit de corps, and dedication to the mission above self — which are essential in military organizations. Since our mission is to be prepared to fight and win wars, our compensation system may necessarily include features different from those normally found in the private sector; e.g., housing and food allowances, stable retirement system, medical care, etc. The current pay and allowances system with its unique system of institutional supports has been tested in peace and war. It works exceptionally well when allowed to function as designed, and it should be continued.

Selective Reenlistment Bonus (SRB). The SRB is designed to increase reenlistments in critical skills. With the help of the SRB the Air Force achieved high reenlistment rates, retained valuable skilled personnel, kept pace with force growth, and started to close the gap between requirements and inventory. Our FY 84 SRB budget is $134 million, of which approximately $91.6 million is for new payments and the remainder for installment payments due those who reenlisted in FYs 82 and 83. Most SRB skills fall in the aircrew, intelligence, operations, communications, electronics, maintenance, and civil engineering career fields.

We are using the SRB in many cases to regain lost experience and to accelerate progress on meeting force growth. We need to maintain bonus skills and continue our progress in replacing lost experience and in meeting force growth in critical skills. Air Force retention rates are at an unprecedented high for first and second-term airmen because SRBs are helping boost this retention. Despite the improvement, the Air Force's current overall career force experience level is 192,000 man-years lower than a comparably sized force in FY 76.

Permanent Change of Station (PCS) Reimbursements. A major factor affecting retention is the inadequate reimbursement of members for costs they incur when directed to move from one base to another. What used to be a routine event, often looked forward to as a new, exciting challenge, has become a major career decision for many of our people because of the significant out-of-pocket expenses involved in relocation. The impact of this problem is being strongly felt in retention, where a recent survey showed that nearly one in four eligible service members would retire in lieu of making a move.

Ironically, military people, whose only choice is to accept transfers or leave the service, must absorb these financial penalties and incur significant reductions in their standard of living. A 1982 Air Force survey showed that the median unreimbursed out-of-pocket costs (excluding home ownership costs) for junior officers (O1, O2, and O3) were $1,550 and for mid-grade enlisted members (E4, E5, and E6) $1,120. For a captain, this represents a loss equivalent to 19 months of the 1 Oct 1982 four per cent pay raise. To an E-5, the loss is equivalent to 21 months of the pay raise.

Congress and the Department of Defense have done several things to improve this situation in the past and this budget contains further improvements; however, much more needs to be done. A priority in FY 84 is to obtain funding for the Temporary Lodging Expense (TLE) entitlement which was authorized by the 1982 Pay Bill. In addition, the DoD Legislative Contingency Program proposes a modest PCS improvement package of new authorities for FY 84. This package includes funding for student travel; storage of a privately-owned vehicle when the member is restricted from shipping it overseas; and a second dislocation allowance when the member is forced to make two PCS moves due to cancellation or modification of PCS orders.

Health Benefits. Health care is a major factor in the career decisions of many Air Force members. Deficiencies in our present program affect both our wartime readiness posture and the peacetime morale of Air Force people.

Expanding the direct care system during peacetime strengthens our wartime capability, just as meeting wartime medical readiness manpower requirements will, in most cases, significantly improve peacetime access to health care for all beneficiaries. Specifically, we seek to increase our physician and support staffs as well as improve our construction program to provide a capability more suited to meeting the demands of the total beneficiary population.

Improving our peacetime capability saves the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) dollars, since corresponding care in military treatment facilities can be provided at lower cost. The Air Force is working with DoD and the Congress to contain CHAMPUS costs to the greatest extent possible without adversely impacting on readiness. Actions designed to reduce CHAMPUS expenditures should not be accomplished at the expense of our primary mission and should not eliminate or erode benefits which the CHAMPUS program was created to provide.

Military Retirement Program. Another critical element in the retention equation is the military retirement system. Despite its significant influence on force structure and career retention, the retirement program has come under repeated attack. Although no major restructuring of the retirement system has occurred, several changes have been made which substantially erode the value of the retirement system. Furthermore, these changes ignore the fact military retirement pay is unique, i.e., it is not like a pension, it is a conditional entitlement. Members must remain available for recall and continue to abide by the Uniform Code of Military Justice.

In recent months, additional proposals have been offered that would further degrade the system. These proposals have heightened member apprehension, and if enacted, would adversely affect members presently on active duty, reinforce the perception that retired pay is fair game for continual change, and do irreparable damage to the retirement program as our most important retention incentive.

In the final analysis, because the Services are still suffering from shortages of skilled officers and enlisted members in critical combat, operational, and sortie generating roles, we can ill-afford to weaken the retention gains now accruing from the recent compensation improvements. We need to preserve the integrity of the retirement system.

Civil Service Retirement System. We are also concerned about the Civil Service Retirement System (CSRS). Next to pay, the CSRS is an important recruitment and retention benefit for our civilians. Some recent changes to the CSRS will achieve economies and may improve program administration. Other changes, however, will cause inequities to employees, retirees and their survivors. In addition, there are proposals which could greatly alter the retirement system. Although the CSRS must be based on sound financing, it is equally important that any changes to the CSRS consider the short and long term impact on federal public service employment.

Training and Education. Training and education are essential to develop the skills, knowledge and attitude Air Force people need to perform their duties effectively. They benefit the member and provide a better qualified individual to serve the Air Force. We have the free world's largest training complex that provides basic military, technical, and initial flying training — as well as undergraduate, graduate, professional military and continuing education programs for our members.

We need to continue to provide meaningful training and education opportunities through high caliber institutions and programs such as the Air Force Academy, Air University, Air Force Institute of Technology, the Community College of the Air Force and the various NCO Academies available throughout the Air Force. Training and education have been and will continue to be effective recruiting and retention tools.

Quality of Life. The military profession places unique demands on our people and their families. Terms of enlistment, extended tours abroad, 24-hour availability, frequent moves, family separation, and compliance with military standards, discipline, and law are institutional demands which are an integral part of the military's prime mission — combat operations.

Service in the military is not predicated on a formal written contract and rules of negotiation (e.g., union grievance, arbitration) as in the private sector, nor should it be. The military member accepts, as a condition of service, that the institution will provide elements of job security, financial compensation, and family needs, to include assurance that living conditions will be reasonably comparable to civilian life. Failure of the institution to reasonably meet those needs hurts the institution as well as the member.

By way of example, it costs the Air Force approximately $1 million to train a fighter pilot. After training, we may send that pilot and spouse overseas, and if there is no base housing, we ask that pilot and family to live in substandard quarters. This lack of decent housing has an adverse impact on retention. We can lose a significant investment for the lack of a few thousand dollars spent on decent housing. We are working hard to correct this problem and need strong Congressional support and funding.

The military services provide for quality of life needs through commissaries, exchanges, housing, dining halls, medical and dental care, and retainer pay in the form of retirement entitlements. Experience has shown that any attempt to reduce or eliminate these institutional programs has a severe, detrimental impact on recruiting, retention, and readiness, and undermines those values which are essential for success in battle. The Air Force must demonstrate that our people's quality of life needs will be met so they can dedicate full attention to mission requirements.

AF Families. The families of Air Force people face demands not routinely associated with civilian life. These include frequent moves, repeated separations, long and unusual hours, and member participation in hazardous missions. Most Air Force families are coping well. Studies show that the attitudes of family members and their satisfaction with Air Force life are major factors in career decisions and member attitude, morale, and productivity.

The Air Force has recognized the needs of our families by opening base-level Family Support Centers to provide centralized, one-stop service to family members. These centers supply information, referral, and coordination of family service providers and resources; PCS relocation assistance; spouse employment information; aid for families in crisis; support during family separation; financial management education; programs for special needs; and family development education.

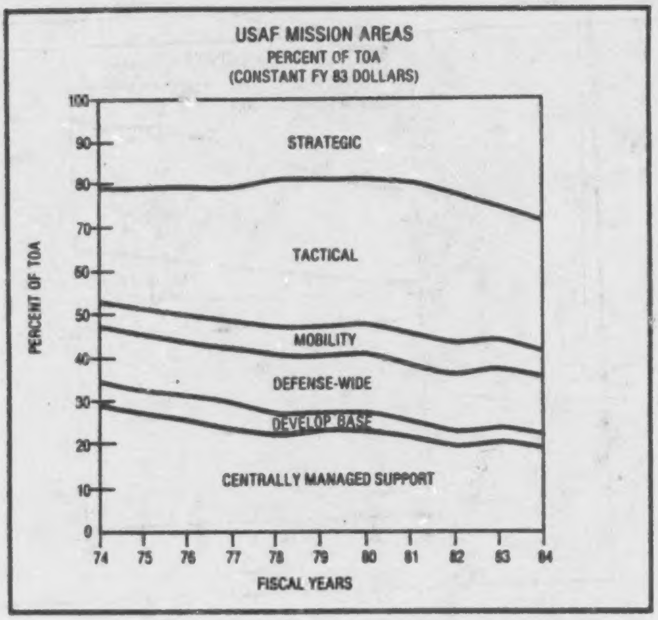
Recent evaluations of Family Support Centers indicate they are having a positive impact on member's productivity and greatly assist commanders in handling numerous, often complex, family-related issues. FY 84 funding is requested to operate 34 Family Support Centers.

* * * *

In conclusion, we have presented in this report the current posture of the Air Force, as well as our programs to fulfill the nation's air power requirements. The FY 84 budget will allow us to take the steps necessary to modernize and sustain the force. We look forward to working with the Congress during the review of our FY 84 budget, for it is only through close cooperation and a strong sense of common purpose that the best interests of the nation can be served. Additional figures and tables that support our programs follow.

IX. FIGURES AND TABLES

Figures (Cont'd)



Figure

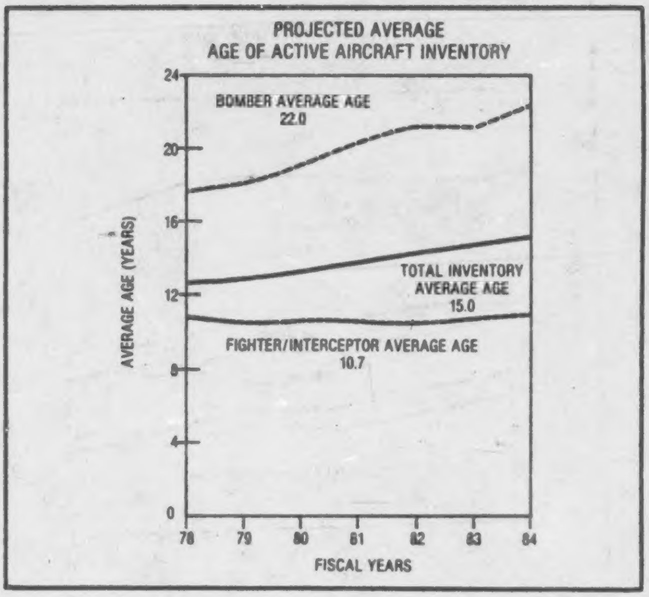

PROJECTED AVERAGE
AGE OF ACTIVE AIRCRAFT INVENTORY
BOMBER AVERAGE AGE
22.0
TOTAL INVENTORY
AVERAGE AGE
15.0
FIGHTER/INTERCEPTOR AVERAGE AGE
10.7
AVERAGE AGE (YEARS)
24
20
16
12
8
4
0
78
79
80
81
82
83
84
FISCAL YEARS

Figure 9

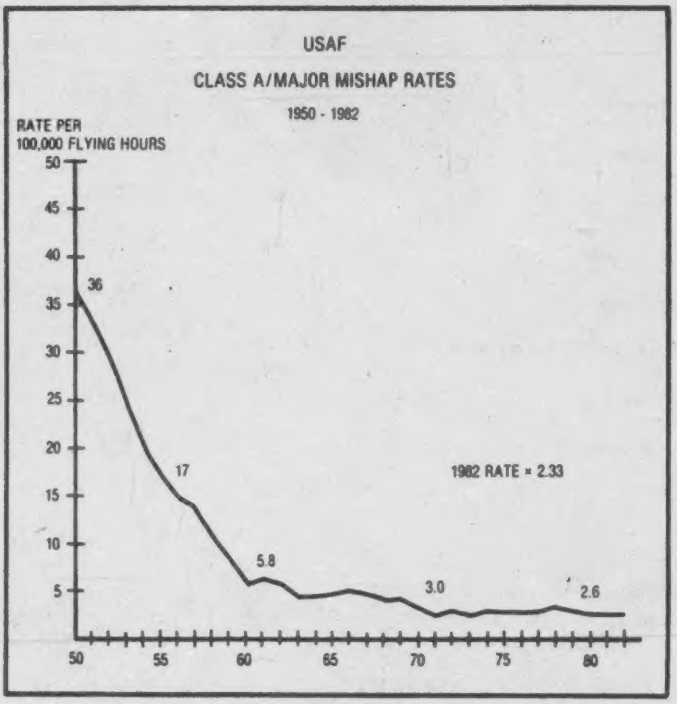

USAF
CLASS A/MAJOR MISHAP RATES
1950 - 1982
RATE PER
100,000 FLYING HOURS
50
45
40
35
30
25
20
15
10
5
36
17
5.8
3.0
2.6
1982 RATE = 2.33
50
55
60
65
70
75
80

Figure 10

TABLES

TABLE A

Total Obligational Authority (TOA) (Millions of $)

	FY 82 1/	FY 83	FY 84
RDT&E	8,898	10,626	13,652
Procurement			
Aircraft	13,659	17,595	22,707
Missile	4,497	4,959	8,571
Other	5,381	5,541	7,626
Military Construction	1,701	1,715	2,423
Military Personnel	12,272	13,107	13,734 *
Operation and Maintenance	18,477	19,617	21,639
Stock Fund	79	162	1,638
Family Housing**	743	852	896
TOTAL TOA***	65,706	74,172	92,887

* Includes active and reserve
** Family Housing included in TOA effective FY 83.
*** Totals may not add due to rounding.

1/Actual Obligations as of 1 Feb 83

TABLE B
Personnel End Strengths
(In Thousands)

	FY 82	FY 83	FY 84
Active Duty Military	582.8	592.5	612.6
Civilian			
Direct Hire	234.9	232.8	236.5
Indirect Hire	13.0	13.3	13.2
Selected Reserve			
AFR	64.4	66.6	69.9
ANG	100.6	101.8	104.1

Personnel Costs
(Millions of $)

	FY 82	FY 83	FY 84
Active Duty Military	11,467	12,196	12,758
Civilian	4,626	4,763	4,949
Selected Reserve			
AFR*	327	362	383
ANG	478	548	593
AF Total	16,898	17,869	18,683

* ROTC and Health Professions Scholarship Programs are included in the Air Force Reserve program.

TABLE C

Selected Key Programs*
(Millions of $)

	FY 84 RDT&E	PROC	(QTY)	TOTAL
Aircraft (3010) (3600)				
B-1B	750	5,627	(10)	6,377
F-15	118	1,960	(48)	2,078
F-16	107	1,963	(120)	2,070
E-3A (AWACS)	69	76	(-0-)	145
TR-1	-0-	215	(5)	215
B-52 (Mods)	-0-	607	(0)	607
KC-135 (Reeng) (Multiyear)	8	876	(31)	884
C-5 (Wing Mod)	2	247	(24)	249
C-5B	-0-	1,317	(4)	1,317
KC-10	-0-	759	(8)	759
Missiles (3020) (3600)				
ALCM	29	90	(0)	119
CLCM	37	604	(120)	641
M-X/Adv Tech	3,378	2,770	(27)	6,148
AIM-7/9	-0-	289	(2705)	289
IIR Maverick	-0-	347	(2,600)	347
Space Systems (3020) (3600)				
NAVSTAR GPS**	96	239	(0)	335
Space Shuttle	337	195	(0)	532
DSCS	4i	117	(0)	158
AFSATCOM	189	31	(0)	220
Def Sup Prog	49	357	(0)	406

* Does not include weapon system initial spares.
** Includes numerous mods to various series aircraft.

TABLE D

Research, Development, Test and Evaluation (RDT&E) by Category

(Millions of $; funds in parentheses show funding for selected major systems)

	FY 82	FY 83	FY 84
STRATEGIC PROGRAMS	3,568	4,613	6,521
B-52 Squadrons	(93)	(91)	(87)
ASMS	(100)	(50)	(98)
ALCM	(100)	(137)	(29)
AFSATCOM	(79)	(46)	(189)
M-X	(1,900)	(2,506)	(3,378)
MM Improv (Incl MK-12A)	(19)	(11)	(5)
B-1B	(471)	(754)	(750)
TACTICAL PROGRAMS	1,741	2,103	2,615
GLCM	(80)	(29)	(37)
CASWS	(23)	(4)	(2)
F-15	(32)	(105)	(118)
F-16	(57)	(73)	(107)
AWACS	(52)	(67)	(69)
INTELLIGENCE AND COMMUNICATIONS	1,260	1,404	1,529
Defense Sat Comm System	(61)	(52)	(41)
NAVSTAR GPS	(165)	(123)	(130)
TECHNOLOGY BASE	630	686	735
ADVANCED TECHNOLOGY DEVELOPMENT	398	416	601
MANAGEMENT AND SUPPORT	1,300	1,402	1,652
Space Shuttle	(277)	(355)	(337)
Space Booster	(19)	(15)	(16)
TOA*	8,898	10,626	13,652

* Total TOA and subtotals do not add as all systems are not included.

TABLE E

Missile Procurement*
(Number of missiles in parentheses)
Millions of $

	FY 82	FY 83	FY 84
Minuteman, and C^3	95	0	31
M-X/Peacekeeper	-0-	0	(27) 2,770
GLCM	(54) 328	(84) 450	(120) 604
ALCM	(440) 588	(330) 544	(0) 90
Sidewinder	(1,800) 131	(1,920) 114	(1,700) 105
Sparrow	(966) 211	(1,165) 197	(1,005) 184
AMRAAM	-0-	-0-	(0) 63
Maverick	(200) 218	(900) 243	(2,600) 347
HARM	(118) 87	(129) 112	(285) 178
Rapier	148	148	63
Stinger	-0-	-0-	(108) 5
Target Drones	18	40	30
TAC Drones	-0-	(100) 24	(400) 49
Modifications	82	91	136
Spares & Repair Parts	200	208	357
Space Programs	818	*** (2) 1,277	**** (1) 1,181
Special Programs	1,545	1,483	2,345
Industrial Facilities	28	27	34
TOA**	(3,578) 4,497	(4,630) 4,959	(6,246) 8,571

* Reflects weapon system cost
** Totals may not add due to rounding.
*** DMSP
**** GPS

TABLE F

Aircraft Procurement*
(Number of aircraft in parentheses)
Millions of $

	FY 82	FY 83	FY 84
WIBDAC	-0-	(3) 145	-0-
B-1B	(1) 1,612	(7) 3,868	(10) 5,627
TAC Ftr Derivative A/C	-0-	-0-	(0) 21
A-10	(20) 230	(20) 353	-0-
F-5	(3) 23	(3) 28	-0-
F-15	(36) 1,087	(39) 1,334	(48) 1,960
F-16	(120) 1,879	(120) 1,905	(120) 1,963
MC-130H	(0) 27	(1) 38	(2) 67
KC-10A	(6) 208	(8) 891	(8) 759
C-5B	-0-	(1) 789	(4) 1,317
E-3A (AWACS)	(2) 248	(2) 139	(0) 76
TR-1/U-2	(6) 162	(5) 174	(5) 215
C-130H	(8) 110	(4) 72	-0-
C-130H (Ski-Equipped)	-0-	(4) 106	-0-
EDS	-0-	(2) 5	(16) 33
T-46A (NGT)	-0-	-0-	(0) 6
UH-60A	(6) 33	-0-	-0-
H/HH-60D	-0-	-0-	(0) 26
Modifications	2,168	2,474	3,209
Aircraft Spares & Repair Parts	3,900	3,528	5,129 **
Support Equip & Facilities	1,972	1,746	2,300
TOA***	(208) 13,659	(219) 17,595	(213) 22,707

* Reflects weapon system costs
** Includes initial and replenishment spares
*** Totals may not add due to rounding

TABLE G

Other Procurement
(Millions of $)

	FY 82	FY 83	FY 84
Munitions and Associated Equip	1,062	781	1,192
Vehicular Equipment	334	347	334
Electronics & Telecommunications	1,091	1,327	1,892
Other Base Maint & Support and Selected Activities	2,894	3,086	4,208
TOA	5,381	5,541	7,626

TABLE H

Operation & Maintenance
(Millions of $)

	FY 82	FY 83	FY 84
Strategic Forces	$3,176	3,041	3,155
General Purpose Forces	3,539	3,713	4,082
Intelligence & Communications	1,156	1,389	1,831
Airlift	1,188	1,163	1,214
Central Supply & Maintenance	4,934	5,384	6,138
Training, Medical and Other	1,783	1,931	2,035
Administration & Assoc Activities	350	400	536
Operation & Maintenance/ Guard & Reserve	2,344	2,587	2,640
Support of Other Nations	8	7	8
TOA*	18,477	19,617	21,639

* Totals may not add due to rounding.

MODERNIZATION AND READINESS

Chairman **Tower**. We hear a great deal of talk these days about suggestions to the effect that we are punishing readiness and sustainability to maintain a big modernization program. There seems to be an impression on the part of some that modernization is not relevant to readiness.

I would appreciate any comment you could made on that, General Gabriel.

General **Gabriel**. We strike a balance between modernization and readiness. You can't mortgage the future for the present or vice versa. As I mentioned, we have to pay attention to the aging process in our systems compared to the Soviets. At the same time I also said that O&M is the lifeblood, and you don't want to have that static display over there. You have to pay attention to that, too.

So you have to have a careful balance. I think we have a pretty good balance now, but we are short in quantity in my mind. That has been the lowest priority, rack-up, in the enhancement—building more wings. But we don't have to short ourselves on modernization—modernization of the total force, the Active and Reserve.

Chairman **Tower**. Actually, failure to modernize could drive your O&M cost up if you are maintaining older equipment.

General **Gabriel**. Yes, the maintenance hours per flying hour on the new aircraft, the F-15's and F-16's, are a lot less than they are for the F-4's that they are replacing.

Chairman **Tower**. So you are getting more for your readiness dollar when you do modernize?

General **Gabriel**. We are getting more, and the operational readiness rates on the F-15 and F-16 are in the high sixties to seventies. That is much higher than we have ever been able to maintain before in the Air Force.

So, yes, it is cheaper is some cases to maintain the new systems.

Chairman **Tower**. Incidentally, I want to advise General Creech, General Allen, and General Davis to volunteer any comments they might want to in the course of this question and answer period. So please feel free to supplement or add anything you may have to add or contradict each other if you want to. It is one big happy family here.

Mr. Secretary, the President's request for defense provides for real growth of about 10 percent over last year. Now, of course, there has been a great number of people who have suggested this is too high and 5 percent real growth would be appropriate and would be adequate.

Now, what would be the potential impact on the Air Force program if your real growth in fiscal year 1984 were cut by half, that is to say, from 10 to 5 percent?

Secretary **Orr**. It would be dramatic. We would have to go back and rework our priorities. Many of the things General Gabriel has been talking about with pride that we have achieved would be sacrificed in terms of operations, maintenance, and readiness.

When you consider that in fiscal year 1984 we are only buying 168 new fighters, and the estimate to modernize our fleet and to get the age down would take over 260 per year, we are already getting an older and older average age in the fighter fleet. Much of that program would have to be sacrificed if we had to cut down further.

Chairman TOWER. I would like to ask each of the force commanders to comment on this.

General Creech?

General CREECH. As the Secretary said, because of deferred strategic modernization in the seventies—and that is what it was, deferred modernization in the strategic systems—those bills are now coming due because of the need to stay equivalent to the Soviets. That spending, of course, puts an enormous pressure on the rest of the budget.

If we were to cut back to the numbers that you stipulated, Mr. Chairman, it would have a very dramatic effect on the conventional forces, in the readiness accounts and in the age of the aircraft as the Secretary said—not to mention setting aside, totally, any hope of force growth.

The unfortunate effect of that is to go back to the problems we had in the late seventies which, among other things, are steps that are not cost effective because you start losing people. The savings are illusory, but even more dramatic than that, it seems to me, is that you significantly lower the nuclear threshold at the very time that you are trying to take measures that will forestall nuclear war.

Chairman TOWER. General Allen?

General ALLEN. Mr. Chairman, I would echo and underscore the comments made by the Secretary, the Chief, and General Creech. Right now, today, we have a good airlift capability as far as peacetime exercises and minor contingencies are concerned.

If you measure our capability against the requirements of a major contingency any place in the world, we are sorely inadequate. I think the President's budget recognizes that fact and has remedial measures under way at a measured pace in order to alleviate those tremendous shortfalls that we have today. I think it would be disastrous right now to interrupt those programs in any way whatsoever.

Chairman TOWER. General Davis?

General DAVIS. Thank you, Mr. Chairman.

Members of the committee, I believe the Secretary stated it absolutely right. That sort of cut would be disastrous. As one looks at the so-called big ticket items, one is paying the bill that finally comes due.

When this Nation tried so desperately in the spirit of détente to negotiate with the Soviets for strategic arms limitations and to come out of those talks with a feeling that we had lowered the nuclear threshold, we only have to look at what the Soviets have done since 1972.

The rapid pace of Soviet modernization, the amount of money spent on strategic modernization, the deployment of SS-17's, 18's and 19's in superhard silos, the development of very accurate RV's, so that when this administration faced up to the significant strategic problem, I think it set about in the 1981 budget and the 1982 budget to do what was right about defense.

Now if we fall back in the 1984 budget, we will only be delaying the payment of that bill to the future. At the same time we will continue with the same old equipment, and the modernized equipment will be further down the road and even more expensive.

I believe the impact on our allies and the impact on the Soviet Union will be significant. The Soviets can deduce that they really don't need to negotiate; they merely have to wait to see what this country is going to do. I think it would be disastrous.

Chairman **Tower**. Mr. Secretary, last Friday the committee heard testimony from the Director of PA&E, Dr. Chu, and one of the staff analysts, Mr. Spinney. Mr. Spinney made the statement that reduction in the defense budget would probably lead to increases in the cost of weapons.

Do you agree and why?

Secretary **Orr**. To the extent that programs have been stretched out, this is one of the things in our past that studies prove has been responsible for increases in the cost of weapons. If the defense budget is cut and programs are stretched out, every weapon system stretched starts to cost more per unit. This happens not only because unit costs are increased but also because you get inflation in the outyears. It is a double problem in that context. Individual items would cost more.

Chairman **Tower**. My additional questions I will submit for the record for response in writing.

Mr. Stennis?

Senator **Stennis**. Mr. Chairman, I am going to be quite brief. I do consider General Gabriel's testimony to be highly important.

General Gabriel, how long have you been Chief?

General **Gabriel**. Since July 1, this past year.

Senator **Stennis**. I don't know you personally but I do know you are a fast learner and I commend you highly for your presentation here.

What I am coming to is that in a hearing last May I asked you a question relating to the alleged inferiority and weakness of the Air Force as compared to other possible adversaries.

Our exchange went as follows: I asked you the question "There is no doubt in your mind at that time that you would not for one instance trade U.S. military forces today for those of anybody else?" You responded, "I have been associated with the air forces of other nations, there are none better, believe me, than the U.S. Air Force."

General Gabriel, do you remember those remarks?

General **Gabriel**. I remember those remarks and I still associate myself with them.

Senator **Stennis**. You still feel the same way.

General **Gabriel**. I still feel the same way. There is nothing I would trade for.

As the chairman of the Joint Chiefs of Staff, General Vessey commented in testimony recently, the one thing he would trade is our ICBM's for their ICBM's. Other than that, I would not trade our triad; I would not trade our fighters; I would not trade our airlift; and especially the last thing, I would not trade our people.

Senator **Stennis**. That is fine. I am very proud to know that you still feel the same way. It illustrates that you have substantiated your facts and know what you are doing. I never had any doubt about it. Anyone who knows the facts would agree with your conclusions. Of course, we have to keep it that way. There seems to be no way available now to do it except just sheer power and continued building up of that power.

General Gabriel, I want to commend you highly for your work, and for your presentation.

That is all I have.

Chairman **Tower**. Senator Goldwater?

Senator **Goldwater**. Thank you, Mr. Chairman.

I would like to comment briefly on the answer that General Gabriel has just given to Senator Stennis.

We are ahead in the air forces because of our personnel. In fact, if we are ahead in our entire Military Establishment, it is because of personnel.

I might remind the committee that the Soviets devote about 15 percent of their gross national product to their military, that we devote the same as we devoted during the days of George Washington, around 6½ percent. But 50 percent of our military budget goes for pay and about one-fifth or less of the Soviet military budget goes for pay. I think that is partially the trouble with the Soviet armed forces.

Now, I would like to ask General Allen, how deficient do you think we are for M-day airlift?

General **Allen**. I would not want to give a specific answer to that, Senator Goldwater, because it would be classified.

I would say we have well under 50 percent of the lift today that we would require on M-day.

Senator **Goldwater**. That would require a classified answer.

The next question will require another one also, so I will shut up.

SUBCONTRACTORS RESPONSIBLE FOR COST OVERRUNS

Mr. Secretary, the prices paid for engine spare parts have risen rapidly over the past several years. The cost of engines, I think, is exorbitantly and needlessly high. You mentioned that the Air Force had made some progress recently toward reducing those costs.

Would you elaborate, please, on the efforts you have undertaken and the progress you have made toward reducing the cost.

Secretary **Orr**. Yes, Senator. First, I would like to touch on the latter part of your statement about the cost of the engines themselves.

We are having conmpetition between two major engine manufacturers for potentially placing the winning engine in the F-15 and the F-16. The requests for proposal will go out in March. They are due back in June. We will make a decision in December.

We can either give all the business to one manufacturer or the other, or we can split it. The competition has already resulted in our receiving an unsolicited proposal, a very fine proposal, from one of the manufacturers. That proposal is better than anything that has happened in the past in terms of warranty.

I think when both manufacturers have had an opportunity to place their presentations before us, we will be remarkably better off because of the competition.

Now, in spare parts, several things have happened that disturb us. One of the things that we are doing is going to the plant and checking, much more carefully than we ever did, on the labor rates paid to both blue-collar and white-collar workers. We have found instances where the anticipated inflation in contracts for both blue- and white-collar worker is far above what now seems reasonable—based on a much lower inflation rate which is being projected and which is present now and being projected for a few years in the future.

In addition, part of the spares problem has been our own fault, Senator. Our computers were programed to feed in information on Government-furnished inflation rates and not actual inflation rates. If we bought a part in 1978 and had to buy it again in 1982, the computer was programed to tell us what the OMB-furnished rate year by year was, which was substantially under the actual rate.

The computer was not programed to adjust for quantity of buy. It makes a big difference whether you buy 5,000 of a part or 500. It was also not programed to adjust for a major portion of the difference as to whether new tooling was necessary.

For some of our older engines on some of our older planes—and some of them are now approaching 30 years of age—the tooling has been torn down. When those parts are in need of repair, someone has to put up all new tooling. So that is a factor which has been a problem in management.

As I mentioned in my statement, we are getting around the problem by going directly to the subcontractor and not buying through the prime. It does not increase competition necessarily, but it cuts out one complete source of overhead when the prime is buying the part and adding 10 or 15 percent, or whatever is necessary in his terms for handling. We are reducing that.

Senator **GOLDWATER**. I am glad you are doing that. I think we will find through investigation that a lot of our cost overrun problems are created by subcontractors who frankly have been running up the budget.

General Creech, before I ask you this question which has to do with missiles, 2 weeks ago a rather well-known news program had some derogatory remarks to make about the missile Maverick based on material that they dug up in the seventies.

MAVERICK MISSILE

What is your opinion of the Maverick? Do you have faith in it?

General **CREECH**. I think the Maverick missile is the most effective weapon the Air Force has developed in many, many years. It is a fact that over 80 percent of all TV Mavericks ever shot have hit their target exactly. The Israelis used it in the 1973 war and found it highly effective.

It was instructive to me that when the Egyptians invited the Soviets out and came to the U.S. Government for assistance in military arms, right at the head of their list of munitions was the Maverick because they had had it used against them. I can find no greater testimonial for a weapon than that.

We fire it all the time in our Red Flag exercises, and we keep careful book and data. It has been a highly effective system. As with all weapons, early in its testing there were some test failures, but that is what testing is all about.

We are now going through a similar cycle with the so-called IIR Maverick or imaging infrared Maverick. It is in the test phase. It has had some test failures, but we know what the technical answer is to those. It is a great improvement over the TV version for night or smoke on the battlefield. We are absolutely convinced it is a cost-effective system.

With regard to the 60 Minutes program, they did not present data; they presented opinions by people who had not been directly involved. They presented no hard data to reflect whether those were good opinions or bad opinions. In our judgment, it was just an overall opinion which is not substantiated by the facts.

Senator GOLDWATER. Thank you.

MRASM

Again, General Creech, the medium range air-to-surface missile, MRASM, appears to enjoy only minimal support within the Air Force.

What is you personal assessment of the value of the MRASM?

General CREECH. Speaking for the tactical forces, we are very cautious about the MRASM, primarily because it is a costly system and the payload, the submunition that it must carry to defeat runways, is yet to be proven. In fact, there have been development problems there.

We think we must proceed very, very cautiously before we buy very costly systems that have not demonstrated their effectiveness. I think it has to go through a testing period before we will know its cost effectiveness.

Senator GOLDWATER. If we terminated this program, what weapon would you use in its place?

General CREECH. We have requirements for advanced standoff weapons, but much less ambitious in terms of sophistication and cost. We have a mission element needs statement for what we call a standoff attack weapon. It has ranges which are classified which keep you outside the enemy threat, but it would be a fifth or sixth of the cost of MRASM, and in our judgment, would do the same kind of job.

Senator GOLDWATER. One more quick question.

I read either this morning or the end of last week in an aviation daily publication that we are opening up engine bids with Europe. Is that correct?

Secretary ORR. I am not familiar with that. There is a controversy regarding European delivery system airplanes, about 12 small airplanes that may or may not be open to foreign competition, but I am not familiar with any engine.

Senator GOLDWATER. Let me look that up. It may apply to the use of European engines on the F-16's made over there. Could that be?

Secretary ORR. It could be.

General GABRIEL. I am not familiar with that one either.

Senator **Goldwater**. I am sorry. I will look it up.

General **Davis**. Senator Goldwater, may I comment just for a moment on MRASM?

You know, our B-52's are also qualified in the conventional role and in order for the B-52 to be effective, particularly in a lethal environment or in an antishipping role, it needs to stand off. We are looking at MRASM. General Creech is absolutely right on the submunition for killing runways. That question has not yet been answered.

MRASM is expensive, but one needs to calculate, for instance, the cost of a capital ship versus one MRASM. So from the strategic point of view, I would support MRASM.

Secretary **Orr**. Mr. Chairman, if I could expand on my views very briefly, we do use a partial European engine in our KC-135 reengining program which along with General Electric is a cooperative venture.

Senator **Goldwater**. Is it a good engine?

Secretary **Orr**. Yes; I would be surprised if that is the one in the news because we have had that program for quite some time.

Chairman **Tower**. Senator Thurmond wants to submit questions for the record.

Senator **Thurmond**. Mr. Secretary, we are glad to have you with us. I want to compliment you on the fine job you are doing.

I have a half dozen questions which you and General Allen can answer for the record. I have to go to the Senate for another matter.

Secretary **Orr**. Thank you.

Chairman **Tower**. Senator Levin?

Senator **Levin**. Thank you, Mr. Chairman.

CONTRASTING VIEW OF BOMBER FORCE

Mr. Secretary, last year the posture statement of the Secretary of Defense was very negative about our bomber force. At that time the Secretary's posture statement said, "Our aging B-52's which incorporate 1950 technology are increasingly less able," and he went on to describe the inabilities of the B-52's.

For instance, he said, "We propose to phase out some B-52G's in the late 1980's. The FB-111A's will be phased out in the early 1990's and the later B-52's would be retained as standoff cruise missile carriers in the 1990's."

This year the Defense Secretary said "We expect our B-52G's to serve effectively in the next decade, that the F-111's instead of being phased out are going to be transferred to the tactical inventory as the Stealth bomber is deployed, and you see a very long operational life for our B-52H's, they will serve well in the 1990's.

There is a very different tone about our bomber force between this year and last year. There is a very specific contrast in what I have enumerated about three of those bombers.

What has changed?

Secretary **Orr**. I don't think there is a change. Both statements talk about the B-52 being a standoff weapon system in the nineties.

Senator **Levin**. The Defense Secretary said "This year we expect our B-52G's to serve effectively in the next decade."

Last year he said, "We propose to phase out some B-52G's in the 1980's."

You emphasize the negative.

Secretary **Orr**. The glass is either half full or half empty, it is still half. The B-52 will serve in the nineties as a standoff cruise missile carrier.

Senator **Levin**. You don't think there is a difference in tone?

Secretary **Orr**. I was not aware of it, frankly.

TRADING WEAPONRY FOR A PAY RAISE

Senator **Levin**. General Gabriel, you have been quoted as saying that you would trade some weaponry for a pay raise. Was that an accurate quote?

General **Gabriel**. That was an accurate quote, yes.

I think all service Chiefs at one time or another have made such a statement, but not in the context of the current year with what has happened with the President's budget.

Senator **Levin**. Weren't you quoted as saying you would swap weapons for a pay raise after the announcement was made?

General **Gabriel**. No; I said I had made that statement before.

Senator **Levin**. You did not feel that way after that pay raise freeze was announced?

General **Gabriel**. Let me put it this way, Senator. This group of Chiefs—and this is my fourth tour in the Pentagon now and I have seen a lot of Chiefs and a lot of Presidents—and I think this group is probably closer to this President than any other Chiefs have been to a President. We have met with him often; he understands the way we feel about our people. He knows we put them No. 1, and we have made these kinds of statements to him.

We had an opportunity to talk to him just 1 month before the pay freeze announcement came out. He also knows the pressures that are on him and the country with the budget deficit. He knew how we felt. He knew the pressures on the budget deficit. He also knew that if you are going to freeze the Federal workers' pay and exempt the military, then that could put more pressure on defense than otherwise.

Senator **Levin**. So he knew you felt you would rather have a pay increase than an increase in weaponry?

General **Gabriel**. As the Secretary said, it was a hard decision to make because he does know how we feel about compensation for the troops.

Senator **Levin**. You say you let him know 1 month before the decision.

Did you let him know you preferred a pay increase rather than weaponry?

General **Gabriel**. We didn't address that specifically that I recall because I don't know that he was feeling us out. But each time we go in we talk about our people.

Senator **Levin**. Would you be willing to take cuts in your budget in order to get some pay raise?

General **Gabriel**. No; I would not like to discuss anything like making any cuts at all at the moment. I think we need what we have in our budget. There is a definite requirement and it is our job to tell you that.

Senator **Levin**. I know what your job is. We are also trying to get your own feelings because we have to make some priority decisions. It is your job to tell us as candidly as you can what your priorities are. I am trying to find out your own priorities.

My question is: Would you rather see some cuts elsewhere in order that we can get some kind of pay raise? Is that your feeling now?

General **Gabriel**. No; I am giving you a personal answer. All the major commanders can give you their answers, but we have told our troops all the way down the line. There will be an impact if there is a pay freeze and probably in the middle levels more than any other.

I think it is containable; we can minimize that impact. I think each of these commanders will back that up. Our troops are concerned about those things, some of which have been authorized and not appropriated yet, that we could do for the troops to make up the difference, some of it—such as each time you make a move, it costs you $1,500 to $2,000 out of pocket to make that move.

Last May it cost me more than that, but I am talking about sergeants, when they make a move, because they don't get enough travel pay, temporary living allowance, household goods allowance. These are things that you have authorized but not appropriated yet. That would help soften the blow. There are a number of other things.

If you touch retirement—some people are considering that—that would have a significant impact and maybe more so than a freeze. I had a commanders' conference this past week, and that is the No. 1 issue with their troops because they have heard a lot of talk about making the 2½-year COLA permanent.

When you are down to 3- or 4-percent inflation, a freeze is not nearly as bad as a 4-percent pay cap when you have 15 percent inflation. The troops understand, as long as they know there is light at the end of the tunnel in 1985. As Secretary Weinberger said, he is committed to give us a catchup pay raise.

Senator **Levin**. Didn't he make that same statement last year that he would retain comparability this year in terms of the cut that was made in the pay increase last year?

General **Gabriel**. I don't know what he said last year.

Senator **Levin**. You are not willing at this time to recommend that we make some other cuts in some other places in order to have a pay increase of some kind?

General **Gabriel**. No, sir.

B-1B PROGRAM ON SCHEDULE

Senator **Levin**. Mr. Secretary, I understand there was an independent study by a number of retired Air Force generals, allegedly at your initiation, that reported a significantly higher cost for the B-1B in 1981 dollars than the advertised baseline program cost, $285 million per aircraft compared to $205 million.

Has that study in fact been made and is this an accurate summarization?

Secretary **Orr**. I am not aware of that study. I think I mentioned, possibly before you came in, in my opening remarks an affordable acquisition approach which I did authorize and which has been completed. It pointed out in history the number of Air Force programs that have grown beyond their original cost projection and indicated a number of reasons why.

That study was not classified; it has been distributed. I can say about the B-1B, based on the very lastest information I have, that the program is exactly on schedule and exactly on price or a little ahead of schedule and a little underprice, Senator.

There is nothing in the U.S. Air Force that I know of today that indicates that the program will be other than $20.5 billion. We are talking in 1981 dollars for the program. There are estimates of $280 million per aircraft in then-year dollars.

Senator **Levin**. No; there is no confusion. I was talking about 1981 dollars. Did that afforadable acquisition approach, that 1983 study conclude that the Air Force will have to start planning and budgeting and managing better, that if it continues to do business, as usual, not only will we get less than planned, but get less for the available money, and does it state procurement programs will be between 11- and 30-percent underfunded between fiscal year 1983 and 1988?

Secretary **Orr**. The affordable acquisition approach study indicates, as you stated, that if we don't do a better job, we will be in difficulty, yes, sir.

B-1B COST PER AIRCRAFT

Senator **Levin**. Did that study corroborate the $285 million per aircraft figure that I used?

Secretary **Orr**. No; I think as a matter of fact the study talked about the B-1B program being an exception—that it was exceptionally well handled, and indicated other programs should be as tightly controlled.

Senator **Levin**. I am looking at a chart. It looks like $285 million per bomber for the B-1B in the A^3 study.

We will have to submit a copy of that chart for the record and ask if that is not the A^3 study that you are referring to and I am referring to.

You are not familiar whith an independent study by a retired Air Force general which shows a $285 million per copy figure for the B-1B.

Secretary **Orr**. I am certainly familiar with the A^3 study, but I am not familiar with any information that would indicate $285 million for the bomber.

Senator **Levin**. I wonder if the other witnesses can help us on it.

General **Davis**. I cannot.

TITAN MISSILE

Senator **Levin**. On the Titan missile does this budget assume the dismantling of additional Titan missiles? If so, how many of those missiles are still safe?

Secretary **ORR**. May I let the head of our Strategic Air Command answer that?

General **DAVIS**. Yes; it assumes the continued phaseout of the Titan II. The phaseout which is progressing now at Tucson, Ariz., started in October 1982. It is progressing well.

Yes; the systems are safe. The safeguards were taken by the Air Force after two reports, and after the accident at Damascus, Ark.; the systems are safe. They are supportable and the system will be phased out over the next several years.

Senator **LEVIN**. Can you complete the answer to the question as to what the savings were and how many are being phased out this year?

General **DAVIS**. I believe that is still classified data, Senator, but I will provide that for the record.

[The information follows:]

TITAN II DEACTIVATION SAVINGS AND FISCAL YEAR 1983-84 SCHEDULE

General **DAVIS**. When the decision was made to deactivate the Titan II missiles, we were well into a major effort to improve the safety and supportability of the Titan weapon system. The budget at that time contained funds to keep Titan viable and in the SIOP through the 1990's. Some of the high cost projects underway or in early stages of completion were long-range projects that could not be completed in time to be cost-effective during the deactivation period, October 1982 to October 1987. Those projects were cancelled and the outyear operation and support funds were reduced. The total projected savings were estimated to be roughly $500 million.

Since October 1982, the planning process has been completed and about 6 months of experience has shown that the actual savings will be somewhat less than earlier anticipated. For example, we have experienced much higher than expected costs for such things as transportation and disposition of propellant, construction of propellant storage facilities, projected cost to dismantle the silos, and a more gradual reduction in annual operation and support funding. Therefore, the current estimated savings for fiscal year 1982 through fiscal year 1987 is about $245 million instead of $500 million. The actual annual savings for fiscal year 1982 (difference between the Titan program element of the President's budget in June 1982 and the reduced final President's budget for fiscal year 1982) was about $23.1 million. For fiscal year 1983 the savings will be about $16.4 million and for fiscal year 1984, about $3 million. These adjustments are reflected in the Titan budget and will support deactivation of nine missiles in fiscal year 1983 and nine in fiscal year 1984. The remaining 34 missiles will be deactivated by October 1987.

Senator **LEVIN**. Thank you, Mr. Chairman. My time is up.

Chairman **TOWER**. Let me recognize Senator Jackson briefly.

Senator **JACKSON**. Mr. Chairman, I would like permission to submit some interrogatories for the record to be responded to by the witnesses in the interest of time.

Chairman **TOWER**. Senator Humphrey?

SUPPORT OF PAY FREEZE

Senator **HUMPHREY**. Thank you, Mr. Chairman.

Secretary Orr, I apologize for not being here at the outset.

I assume you are supporting this pay freeze, is that correct?

Secretary **ORR**. That is correct.

Senator **HUMPHREY**. Is that an original position or were you requested by the Secretary of Defense to support the freeze?

Secretary **ORR**. I was not specifically requested to support the pay freeze. I am a Presidential appointee and I support the President. I am frank to say that with the January inflation rate negative—I saw in the paper this morning that UAW employees would lose 1 penny in their wages for the first time since, I believe, 1958 since inflation is now deflation—that a pay freeze is not nearly as harmful as it would have been. The only purpose of a pay raise, frankly, is to make up for inflation.

Senator HUMPHREY. One robin does not make a spring, Mr. Secretary.

Secretary ORR. That is correct.

IMPROVEMENTS IN READINESS

Senator HUMPHREY. Mr. Secretary, I am particularly interested in improvements in the area of readiness as chairman of the Subcommittee on Preparedness. The Air Force report which we have been provided a copy of indicates in a sort of general way that there have been improvements in preparedness.

Let me ask you this first, however. I think I saw that the O&M as a percentage of the Air Force budget is proposed to be 23 percent in 1984.

What was it in 1983?

Secretary ORR. We will calculate it out.

General DAVIS. I have a related answer. In 1984 or 1983 O&M was 3.1 percent less purchasing power than it was in 1982 which equates to about $800 million. The impact is significant.

Senator HUMPHREY. You had a real drop in O&M purchasing power in 1983 over 1982.

How does that work out for 1984?

Secretary ORR. It will continue I think. I think the actual growth in O&M is a slight negative growth.

O&M PURCHASING POWER DECLINES

Senator HUMPHREY. The real purchasing O&M is going to decline?

Secretary ORR. Yes; a slight decline.

Senator HUMPHREY. Would you agree that we dug a ditch for ourselves in the seventies by underfunding O&M and we are just now beginning to climb out of that ditch?

Secretary ORR. Very definitely. I think there was a conscious decision made, and one can't go back and criticize other people who made it. They made it in good faith, a conscious decision to go for force structure at the expense of O&M. We built more planes, but did not buy spare parts to fly them. We had planes, on ramps, that were not flyable. We are trying to correct that.

Senator HUMPHREY. Aren't we heading back to that same kind of situation in a few years if we continue the present trend of reducing real O&M?

Secretary ORR. We could not go for an extensive time and reduce it a substantial amount. That is very true. I am not sure that a very slight reduction is of concern.

Senator HUMPHREY. The second year is what begins to make a trend.

Secretary ORR. When you speak of a percentage of the budget, but I think in actual dollars it has been doing well. We had some tremendous acquisition which reduced it as a percentage. Both the B-1B and MX are heavy in this 1984 budget.

Senator Humphrey. I can understand that. Nevertheless, viewing it from the aspect of real purchasing power, it has declined 1983 over 1982, it is going to decline 1984 over 1983. No matter how you cut it, the Air Force has less to work with in terms of O&M. To me that spells trouble. Nevertheless, you are forecasting an increase in flying hours in 1984.

What does that equate to per pilot?

FLYING HOURS INCREASED

General Gabriel. We will be up to 20 hours. It is an increase of about 1½ hours per pilot per month. Let me say that in 1984, the numbers are classified, but the peacetime operating stock is very high, the highest it has ever been, this year and WRSK/BLSS is also at a good level.

We improve sustainability there as well as the readiness to go to war in the 1984 budget.

Senator Humphrey. The Air Force flying hours per pilot increased from 18½ to 20?

General Gabriel. Yes.

Senator Humphrey. Do you have fuel to fly the increase?

General Gabriel. Yes; we have everything in the budget to do that, including maintenance.

Senator Humphrey. How about the spare part situation related to aircraft, aircraft spare parts? Can you quantify that trend in some way?

General Gabriel. That is what I just mentioned. I would like to provide that for the record; it does show a good story. From 1980 to 1984 there is a very good rackup; 1984 will be a good year.

[The information follows:]

AIRCRAFT SPARE PARTS FUNDING TRENDS

Yes; the following aircraft spare part funding profile shows the trend. This funding supports increased flying hours and continues to build readiness and sustainability:

Peacetime operating stocks (POS) funding

Fiscal year:	*Dollars in millions*
1980	$784
1981	1,588
1982	2,449
1983	2,441
1984	3,192

War readiness spares kits/base level self-sufficiency WRSK/BLSS

Fiscal year:	*Dollars in millions*
1980	$87
1981	597
1982	779
1983	290
1984	740

In addition, the Air Force has other war reserve materiel (OWRM) funds programed to achieve strategic airlift defense guidance sustainability objectives in fiscal year 1988.

DEPOT MAINTENANCE

Senator Humphrey. Depot maintenance, the trend 1983 to 1984?

Secretary **Orr**. The trend is approximately level in depot maintenance. The backlog has not dropped as much as we would like. We are holding our own, but we are not eating into the backlog as we would like.

Senator **Humphrey**. Is there a congressionally mandated zero-backlog date for depot maintenance?

Secretary **Orr**. There is a $300 million congressional goal in BMAR. Nothing congressionally mandated, they tell me, but there is a congressional goal of $300 million in base maintenance and repair.

Senator **Humphrey**. How are we going to do BMAR?

Secretary **Orr**. Again we are not hitting it. We are about $500-plus million and holding it at that level. We brought it down the year before last and have been at that lower level, but we are not down to $300 million by any means.

Senator **Humphrey**. So we have been level, including 1984 we will have been level for 2 years, 1982 and 1983 and 1984 is level?

Secretary **Orr**. Yes; approximately 1982 it came down. It has not come down in the last 2 years.

I have been handed figures which better indicate what I was trying to say. In 1983 O&M was 26 percent per total force, but had a 1-percent negative growth for the Active Force. In 1984 it is only 23 percent total force, but has a 6½-percent positive growth for the Active Force. That is, other portions of the budget which climbed to a greater extent reduced the relative percentage of O&M.

Senator **Humphrey**. I understand that, but that is the same explanation that got us in trouble 6 or 8 years ago, is it not, because other portions of the Air Force budget grew relative to O&M?

Secretary **Orr**. I think the story on peacetime operating spares is substantially different from what it was several years ago. It is climbing well toward a 100-percent capability.

Senator **Humphrey**. Let me make sure that I understand General Davis' statement that irrespective of the discussion about relative portion of O&M to the entire Air Force budget, the real purchasing power in O&M is declining in 1984.

General **Davis**. In 1983.

Senator **Humphrey**. How about for 1984?

General **Davis**. I don't have those figures with me.

Secretary **Orr**. This is the figure I was furnished; 6½ percent. Let me say I will correct that in the record if it is wrong; 6½ percent positive growth.

[The information follows:]

O&M GROWTH

Yes. Fiscal year 1984 O&M real growth for the active force over fiscal year 1983 is 6½ percent. If you include Reserve and Guard Forces the overall O&M real growth is reduced to 6 percent.

Senator **Humphrey**. In real dollars,

Secretary **Orr**. Real growth.

Senator **Humphrey**. Are we adequately budgeted for spare parts for these new aircraft in outyears? I guess the answer is yes, but I am not convinced that is so.

Secretary **Orr**. I understand. We are disappointed. I said it before the committee 1 year ago and thought we would be at 100 percent. We found on some contracts we would not be 100 percent; it would be less than that. I think it is a very vital concern to the Chief of Staff and to me. We have a big correction in this year's budget and hope to finish up the correction in next year's budget.

Senator Humphrey. Thank you.

Thank you, Mr. Chairman.

Chairman Tower. Senator Kennedy?

Senator Kennedy. Thank you very much, Mr. Chairman.

General, let me welcome you.

Mr. Secretary, again thank you for all the help and assistance that your Department has given me in the past 2 weeks in trying to better understand the responsibility of the Air Force, the nature of the threat it addresses its missions, and also the problems that you have been facing.

I thank you for the responses that you have given to earlier questions.

SIZE AND SCOPE OF FUNDS REQUEST

I think one of the matters which is of central concern is, of course, the amounts that are being requested, the size and scope of these requests, and whether they really are essential to our security.

I stated previously that I think this country, regardless of its economic situation today, can afford enough in terms of our national security to defend our interests and that of our allies around the world. I think the reasonable question is what is enough and whether this is enough or whether if you had somewhat less, that would be enough, or whether even additional funding is necessary in specific areas.

I think over the course of the questions that you have heard this morning there is some concern about the flow line in terms of procurement and what this is going to mean for modernization. Clearly, we need modernization in terms of efficiency and readiness, but I also think, as do members of this committee who know a great deal more than I, that over the historical past there have been significant overruns that can be explained with a variety of reasons.

Some is management of the programs, the other is the kind of project you are involved in, which is high technology, where you are on the cutting edge of change in terms of technology. That has to be expected. If we don't understand that, I think we are being unrealistic.

In the studies that have been made, whether it was in Mr. Spinney's testimony here or even in your own study that came out last week on the affordable acquisition approach, even in this study it is pointed out if the trend continues, and costs increase on future weapons, because the costs compound during the 5-year budget period, the buying power of the Air Force budget will be reduced by 23 percent.

If we cast in concrete the kind of weapon system requested here, I think we know where the reductions are going to come. There are going to be tighter budgetary considerations and that will be in the O&M account.

I think, General, you have outlined in very compelling terms what the impact is on a most important element of the Air Force, and I suppose the Armed Forces generally and that is force personnel.

They are not able to get the training they need, or upgrading of their skills. They are getting inferior housing, and they are not getting the pay that they need. I think we ought to recognize that that is important. I personally feel that it is very important to realize that if we continue on all fronts at the present time, we are perhaps going to be in a situation where we may face real tightening down in the kind of programs that are going to have the greatest impact in terms of personnel.

Your own recommendations in this report would limit new starts and cancel or defer programs that cannot fit into the investment plan. I know you have ideas about how you can remedy these past problems, but I think that it is going to be very important for us on this committee to understand exactly what you are doing and why it is going to be different and that we are not going to be faced with the same situation 2 or 3 years down the road, under impossible circumstances.

What I would like to know, at least very briefly, is what you are prepared to submit to the committee to assure that we are not going to have that kind of situation down the road in 2 or 3 years in terms of overruns or the increased cost that you, yourself, have indicated if the past trend had been followed.

We have had distinguished Secretaries, both Republicans and Democrats alike, over this period of time, skilled individuals, who have, I think, been strong patriots and strong advocates of a strong defense.

Can you tell us what you are going to do differently than they have been able to do, so that when we are in a belt-tightening situation it will not affect what General Gabriel has pointed out is the most essential element in our Air Force?

Secretary ORR. These capable gentlemen sat in front of this committee and made statements about what they are going to do. We submit to the Congress selected acquisition reports periodically for a group of items that were identified 1 year ago. The reports showed a growth of 10 percent.

The reports that come before you next month in March for the same group of items that showed a 10-percent increase last year will show a 10-percent decline this year. That is not generous on the part of those at the table. That is in measure a reflection of inflation.

UNREALISTIC INFLATION RATES

In part the problem identified in the Spinney report and A^3 report resulted from unrealistic inflation rates, in general handed down in all administrations by the Office of Management and Budget. Those rates become even more unreasonable when applied to defense because unfortunately many of the items in our procurement budget have showed greater inflation than the so-called Consumer Price Index.

Senator **Kennedy**. Is there any reason to believe they won't in the future?

Secretary **Orr**. There is reason to believe we may be better protected because last year OMB gave defense its own separate inflation index which was higher than the one granted other departments. That is a sign that it is a move in the right direction when we have a more realistic inflation index.

Second, I don't believe it was true for any other Secretary, that this Congress has been generous in giving us multiyear procurement and we have thus been able to stabilize programs. We have multiyear procurement of the F-16. We are going to buy 120 a year for 4 years. The manufacturer can make some plans. We have multiyear procurement in a number of other programs.

Other Secretaries have talked about independent cost analyses. All I can tell you is that we are using more of them, more independent people, and we are programing toward the most probable price, not the most optimistic price.

Senator **Kennedy**. I think these are good responses to the questions. If we could perhaps develop that in a more complete way, perhaps through an exchange of letters, could you outline, in as great detail as you possibly can, why you think that those conditions we have been warned of whether it is by Spinney who has been in this business for a period of years and has commented on the current situation, or the A^3 study, the warning that they give us today will not occur, why we will not be facing that situation in another year, or 2 or 3? I will be very interested in it.

TACTICAL AIRCRAFT

Second, if I can move to another area in the tactical area, General, Air Force reports as we modernize our force we need a 40-wing Air Force to meet gobal commitments and worldwide deployment which brings us to the issue of matching force size and the definition of our military strategy.

What is the military scenario which requires the United States to increase TAC air in the short term? Where are these new wings going to be employed?

General **Gabriel**. Senator, global commitments that are made drive fleet size. As you know, we are faced with a situation where if you have a European action, Southwest Asia action and action in the Pacific, we would be faced today with sequential operations such as we had to do back in World War II.

We would emphasize one theater and as the situation changes, emphasize another. But, we have to plan today on sequential operations. If we get the 40 wings that we are talking about, we will have much greater confidence of being able to emphasize and improve capability in a single theater, as well as hold in another area and thereby increase our global capability. We are spread thin with 36 wings.

OUTER SPACE

Senator **Kennedy**. On the question of outer space, has the Air Force taken a position with regard to the possibility of getting some kind of arms control in outer space?

General Gabriel. I don't know that we have taken a position.

Senator Kennedy. In your report to the Congress you said we have set out a doctrinal basis for deployment of space systems.

Does this doctrine include a plan for seeking arms control in space?

General Gabriel. We have had some discussions with the Soviets, obviously, on what is allowed out there, but we have never reached any agreement; with them in terms of arms control.

Chairman Tower. If the Senator will yield, I think this might properly be addressed to the Arms Control and Disarmament Agency. We will be glad to get them up here before the committee if the Senator from Massachusetts would like to pursue that.

Senator Kennedy. I had other questions, Mr. Chairman, on the MX and B-1B. I see from your opening statement that you prefer those to be asked in closed session.

Chairman Tower. I think the B-1B is fair game. Hold questions on the MX. We will have subsequent hearings following the President's Commission report.

Senator Kennedy. Thank you.

Chairman Tower. Senator Cohen?

MAVERICK MISSILE

Senator Cohen. General Creech, you indicated in response to Senator Tower's question about the Maverick missile that the Israelis used the Maverick successfully during the 1973 war. Is that correct?

General Creech. That is correct.

Senator Cohen. I assume the Israelis turned over the information to the Air Force in terms of the successes they were able to achieve following that war. Is that correct?

General Creech. We have some of that data, not all of it.

Senator Cohen. Would it be helpful to find out whether or not the Israelis used the Maverick and how successful it was during the incursion or invasion in Lebanon?

General Creech. It would be very useful, but we don't have that information.

Senator Cohen. Is it fair to say that any time we have our allies utilize systems in a combat situation that we develop, then from a military point of view it would be very helpful for us to find out the successes, the failures, the weaknesses, and strengths of those particular systems?

General Creech. Yes; I think it is. I think, generally, we have had access to that information.

Senator Cohen. My understanding is that we don't have access to that information now, that there has been no sharing of that information with the Department of Defense following the Lebanon war?

General Creech. I defer to the Chief on that.

General Gabriel. We have had some interface with the Israelis on how they used their systems and the results. We are trying to get more detail, as you know, with the memorandum of understanding that has not been signed. We have a good deal of information now just on the basis of military association.

Senator **Cohen**. You would agree it would be helpful to have full access to that information?

General **Gabriel**. Obviously, we need to know as much as we possibly can about our systems.

Senator **Cohen**. It is not that the Israelis have not offered to share the information. They have in fact signed that memorandum of understanding and we have refused to sign it.

Is that correct?

General **Gabriel**. I don't know that.

Senator **Cohen**. I believe that to be the correct situation.

MILITARY PAY RAISE

Let me ask you about the pay raise for just a moment, General Gabriel.

Last week, General Meyer, who is Chief of Staff of the Army, said that he feels the proposed pay freeze is a mistake and that we need a pay increase targeted at senior enlisted personnel, particularly those in grades E-5 to E-7.

What is your reaction to that?

General **Gabriel**. If I can, I will give you a quick answer and turn it over to the Secretary. He has some positive views on that, too.

We had views last year that changed this year. We thought targeting was not good, with a 4-percent cap. Now we think there is good reason for targeting.

Secretary **Orr**. I came before this committee, and others last year and the year before, much in favor of the across-the-board increase. For the particular situation we are now in, my views have changed. I am not firm on what E grade we start at, but I can see targeting from E-3 or E-4 on up without any heartburn whatsoever.

Senator **Cohen**. If there is a pay raise which is voted by this Congress, you would support targeting it as opposed to an across-the-board approach?

Secretary **Orr**. Yes.

CRUISE MISSILES

Senator **Cohen**. General Gabriel, let me ask you this question.

Does the cruise missile have a lower radar cross section than an aircraft?

General **Gabriel**. Yes; most air cruise missiles do.

Senator **Cohen**. As a general proposition, it is more difficult to shoot down a cruise missile than an aircraft?

General **Gabriel**. That is getting into a little more detail on that one. Obviously, if you are talking about the B-1B, I would have to disagree with you because of what the B-1B can do. I don't think it is classified.

The B-1B can see a threat before the threat sees the B-1B. The B-1B has ECM. The B-1B can either kill the threat, or avoid it, or use ECM and jam it. The air-launched cruise missile cannot do that. The air-launched cruise missile has a signature at a low level and is not that fast.

Senator **Cohen**. Thank you for that explanation.

As you know, an item appeared in the Washington Post that talked about the administration canceling or reducing the level of production of the air-launched cruise missile to move into the Stealth technology. I think the question appropriate to follow is whether the cruise missile is going to have difficulty penetrating Soviet air defense.

What is the likelihood of the B-1B penetrating Soviet air defenses versus the Stealth bomber?

General **Gabriel**. Of course the advanced cruise missile is that change, and the Secretary might want to comment on this—why we have zero in the budget for it, and what we are going to do in the future. But the ALCM-B is a good cruise missile. It will have good penetrativity.

The follow-on missile, which I will not talk too much about in this session, is a better one. It is a matter of phasing it in. A mix will be better than one of a kind if you do have an improvement. That is what it is, an upgrade of the cruise missile.

Senator **Cohen**. As a matter of phasing do you want to add anything to that, Mr. Secretary?

Secretary **Orr**. We think the cruise missile is a very fine weapon and we intend to buy the number we always intended to buy. We thought we had an opportunity to buy a better one so we put in a zero item.

I would like to say in regard to the article you referenced in the paper, I think it is extremely unfortunate. There was nothing in our posture statement to indicate we were lying to the public or lying to anybody in our testimony last year. We intended at that time to go ahead with the cruise missile that was in production. When we got to preparing this budget, we thought it might be possible to buy a different cruise missile that was advanced.

The initial proposals that are coming in, both in schedule and in cost, now lead us to wonder whether we can afford it and whether it is wise to transition. We are rethinking whether we want to continue to buy exactly the same cruise missile that is now being produced for at least another year.

Chairman **Tower**. Senator Cohen, I think this is a topic that we could best pursue further in closed session.

Secretary **Orr**. Senator, could I say in regard to targeting pay, I did not want to misspeak myself, I was referring to targeting only so far as it referred to the enlisted personnel. I would not be in favor of giving a pay raise only to the enlisted personnel to the exclusion of officers.

I do favor a pay raise for officers if one is given enlisted personnel.

MX

Senator **Cohen**. Let me come to the MX for a moment. I was not here to hear the chairman's recommendation on not discussing MX. I will try to discuss it in a way that does not violate his request.

On page 9 of the statement you say, "We have recommended that Peacekeeper be deployed in new, hardened capsules in closely spaced basing."

Who is the "we," General Gabriel?

General **Gabriel**. The "we" is the Air Force. That was our submission.

Senator **Cohen**. Was that your recommendation last year?

General **Gabriel**. That was our recommendation, yes.

Senator **Cohen**. Was that your personal recommendation?

General **Gabriel**. Yes; it was my personal recommendation along with the Air Force. We are on the record as having submitted that at the end of the year.

Senator **Cohen**. There was some confusion as far as the testimony before the committee, in that the chairman of the Joint Chiefs indicated that three of the five members of the Joint Chiefs of Staff did not recommend the dense pack approach.

General **Gabriel**. At that session of the Joint Chiefs—I don't like to talk about deliberations—there were not votes, there were discussions. There were, obviously, some Chiefs who were concerned about the basing mode. All the Chiefs agreed in the need, just like the last four Presidents. We need an MX in the triad but there were some concerns about the basing mode.

Senator **Cohen**. I don't disagree with you. There was testimony by General Vessey that three of the five did not support the recommendation for the dense pack approach.

Is that accurate or not?

General **Gabriel**. Two, and he would say this, too. Three had some concerns, but I wouldn't want to get into the differing concerns about the basing system—not that we would vote against it; there was no vote. Three had concerns about it; yes.

Senator **Cohen**. You recommended that we go with the dense pack?

General **Gabriel**. I recommended we go with the dense pack.

Senator **Cohen**. I know the Commission is currently studying that, and I won't get into those deliberations.

From my own point of view, dense pack does not have the support and in my judgment will not have the support of Congress. I hope when you provide the Commission with whatever information it requests that you give it a much wider perspective on the other options.

Just a question Senator Kennedy started to touch on.

SOVIET R&D PROGRAM

On page 39 of your statement, you indicate that the Soviets are pursuing a rather aggressive research and development program which, left unchecked, could lead to military dominance.

What do you mean by left unchecked?

General **Gabriel**. Where was that?

Senator **Cohen**. On the bottom of page 39 in the Air Force Report, 1984.

Secretary **Orr**. Speaking of space?

Senator **Cohen**. Yes.

General **Gabriel**. Certain things in space, if left unchecked, would do what?

Senator **Cohen**. It says that the Soviets have pursued a very aggressive R&D program in space which, left unchecked, could lead to military dominance in this important area.

What do you mean by left unchecked?

I raise the question, Mr. Chairman, realizing it goes before the Arms Control and Disarmament Agency, to the extent we have that functioning unit. Hopefully, sometime in the month of March we will have a nominee considered.

Does that mean if you leave it unchecked, you have to pursue, an equally aggressive R&D program, or does it mean that perhaps there are some limitations that we might try to achieve so that we don't constantly have to extrapolate ourselves into an ever higher level of competition in space?

Secretary **Orr**. I think the latter is definitely true. We have not come before the committee to seek the exact number of planes that the Soviets are building, or tanks or carriers. There is a level well below what they have in terms of confidence.

ANTISATELLITE CAPABILITY

Space is the same. I am speaking of antisatellite capability. We know they are ahead of us. Checking means we provide for ourselves some antisatellite capability. It does not have to be one to one with the Soviets.

Senator **Cohen**. Would it be preferable to ban antisatellite capability, period?

Secretary **Orr**. Yes; if you felt there was a way to ban it and have both parties live up to it. I think the entire problem of control is how you do it and how you get it verifiable and equitable.

General **Gabriel**. We have attempted to do that, and we have not had much success. They have one, and we don't. That is probably the reason.

Chairman **Tower**. Senator Bingaman?

Senator **Bingaman**. Thank you, Mr. Chairman.

I want to get to the question of priorities, if I can, Mr. Secretary. This is something that we seem to have difficulty getting responses on.

In the study which you mentioned several times, the affordable acquisition approach, there is a chart labeled "Option B, Selective Cancellations," which lists various programs that, if cancellation had to be made, could be canceled.

I just wanted to get your reactions as to whether those in fact would be places you would want to make cuts if cuts had to be made. The ones listed there have low priority, as I understand the chart.

BUDGET PRIORITY ITEMS

Are the Maverick, the ground-launched missile, the NAVSTAR global positioning satellite, the derivative fighter, the medium-range air-to-surface missiles, the WASP, the minimissile and the high-speed antiradiation missile, in fact the places where cuts would be made, are these lower priority than some other items?

Secretary **Orr**. In the draft which was leaked, and I use that word because it was not a classified study in any way, but in that draft that appeared there was written on the chart the word "priority." In the affordable acquisition approach study we released, the word "priority" is not there.

I call your attention to the oddity of using that chart to indicate priority, because at the bottom of the chart, if you have it in front of you, it would indicate the highest priority in the U.S. Air Force is the next generation trainer.

I want to assure you that that is not the highest priority in the U.S. Air Force. Therefore, you can't go along that chart and say that the things at the top are necessarily the lowest priority. In the affordable acquisition approach study, that is shown as a hypothetical example.

Now, in specific answer to your question if we are cut, we are going back and redo our priorities. In general, that particular chart from the bottom toward the top follows the general priorities. You will note the MX and B-1B are toward the bottom of the chart which indicates high priority.

The President has indicated his strategic programs are of high priority. Coming up the chart, as I remember it, you get some items of readiness and sustainability. Then you come to the F-16 and F-15, which are modernization.

You also have airlift. Working from the bottom toward the top they are in general the President's and our dictated priorities, but individual items are not necessarily representative.

TACTICAL AIRCRAFT

Senator BINGAMAN. Let me ask, Mr. Secretary or General Creech, something about the tactical aircraft in the new budget.

As I understand this year's budget, there is a call for a reduction of 94 tactical aircraft in all services from the aircraft procurement rate that was planned last year for fiscal year 1984.

Is that your understanding as well?

General CREECH. I can't speak for all the services, but there is a reduction in the Air Force.

Senator BINGAMAN. Do you think that that is a wise reduction, that in fact we can afford to eliminate those tactical aircraft more readily than we can afford to eliminate other items in the budget?

General CREECH. The best I can answer that goes back to one of Senator Kennedy's questions, whether we need a 40-wing force or need to sustain a 36-wing force which is what we have today.

The other side has the equivalent of 108 tactical fighter wings. They are building aircraft and putting them in their force at an average of 3 to 1 over us.

Moreover, the 40-wing goal was first enunciated in 1973 and has been endorsed by every administration since. We have not had luck getting up to that.

Now, in an overall context, speaking for the tactical forces, I am very concerned about the cut in an already seriously constrained fighter procurement.

Let me quickly add that we must, as an Air Force, face up to the realities of the fiscal constraints we face and the fact that our strategic forces have been significantly ignored for many, many years.

We must get the strategic forces back up to speed. In that context, I strongly support the President's budget.

Senator **BINGAMAN**. Let me followup and ask a question or two about the cost of various of these fighters. I am not that familiar with the particular planes. From what I can tell in reviewing the budget, the F-15 is priced in this proposed budget as about 2½ times the cost of the F-16. There is a proposal that we would spend $2.1 billion for 48 F-15's and $2.1 billion for 120 F-16's.

AIRCRAFT COST COMPARISONS

I would be interested in knowing what there is about the F-15 that makes it 2½ times as valuable as the F-16?

General **CREECH**. A little less than twice is the way we have figured it. At least the flyaway cost, apples to apples comparison. One thing that makes it more expensive is the fact that we have never been able to ramp it up to a good production rate in order to get it at a lower cost.

General **GABRIEL**. The F-16 is a decent rate at 120, but we want to get it higher because we have further savings to make in the F-16. The flyaway charge for the F-16 is about half of the F-15. Talking about the difference between the two, the F-15 has a longer range radar and it has an air-to-air radar missile. The F-16 will have that itself in a couple or 3 years, maybe 1986 or 1987. That will be a tremendous increase in the F-16 capability.

They work very well together. We train together in the same flight, two and two. The Israelis did that very effectively. So, you have a long look on the F-15 radar and you have the close combat capability in the F-16.

We are looking for a mix and we have a pretty good mix, but we have not been able to get through here, through Congress, the rate. If we had both the F-15 at the 700 and some initial buy that we had planned and programed, at the rate that we had planned the official production rates, we could have saved $2 billion in the buy.

Senator **BINGAMAN**. Let me ask also about the comparison of costs between the B-1B and some of these tactical fighters.

As I understand, we are talking about $200 million for each B-1B being the estimated cost and that perhaps an average figure for a tactical fighter would be something around $20 million per plane.

I was wondering if you think, the overall military capability of the country would be strengthened more by adding 100 B-1B's or 1,000 tactical fighters since we could buy the two for the same price?

Secretary **ORR**. I would have to support, as you would expect, the budget which was submitted after a great deal of consideration. I think most of us support the fact that until we modernize the three legs of the triad the likelihood increases that tactical force might be called on to be used. We have got to maintain an effective deterrence against the Soviets.

General **GABRIEL**. If I could add to that a bit—about the conventional versus strategic posture we have—you will hear it said that the conventional is the most likely conflict with the Soviets. I agree that it is.

The strategic nuclear exchange is the least likely. It is, obviously, the most crucial, critical thing that could happen. We want to make sure we keep it the least likely.

That is an interesting trade-off you have mentioned. The priority that has been laid out for us is that we have to improve our strategic triad. That is the reason we are buying those B-1B's.

Senator **Bingaman**. That is all I have, Mr. Chairman. Thank you.

Chairman **Tower**. I will be glad to take a second round. Let us limit the questions to 5 minutes for the second round of questions.

Senator Goldwater?

Senator **Goldwater**. I think the B-1B is probably the best living example of stretchout due to political decisions or any decisions. I remember when that aircraft first came off the board it was $28 million. Because we could not make up our minds to begin with, because it was canceled by one President, started by another, the cost has gone up that dramatically. That happens, I don't care what we are buying.

General Gabriel, this committee has repeatedly stated that the production rates of tactical aircraft be increased to efficient levels. We have placed particular emphasis on increasing the production rate of the F-16.

F-16'S REQUESTED FOR FISCAL YEARS 1984-86

My question is what level of F-16 production have you requested in fiscal year 1984 and what level do you project for fiscal years 1985 and 1986?

General **Gabriel**. It is 120, 120, and 180. If we ever hope to get up to what we think we need, as General Creech says, just to maintain the average age and to get some growth, you are going to have to get the Air Force around 260, 270 fighters a year. To do that you will have to buy probably around 210 F-16's and get whatever you can of the F-15 beyond that to get us to the level of 260.

Those are the numbers we are working with in the outyears, those kinds of figures to get some growth as well as hold the average age. We are not gaining much in average age.

Senator **Goldwater**. Speaking as chairman of the Subcommittee on Tactical Warfare, we want to see the F-16 production increased to an efficient level before the F-15 production is increased.

Do you think we can reach that?

General **Gabriel**. I think we are there. We are going to support that ramp-up I just mentioned to you—up to 180 and then hopefully over 200 for the F-16. With your support we will get there.

I would hate to think that the U.S. Air Force could be down to building one fighter for any long period of time. These are two good, solid programs—two good airplanes, the best in the world in my opinion. It is just a matter of mix and how high do you go in the total, and the mix will be obviously in favor of the F-16 at half price of the F-15 which is a bargain for the F-16.

Senator **Goldwater**. I would like to ask General Davis and General Allen their views. I think General Gabriel has spoken to the point on tactical air.

FLYING TIME

How about your crews flying? Are your crews getting enough time in the air?

General **Davis**. We have a small increase in flying hours in 1983, a small increase in 1984, and a large increase in 1985. I would have to say those increases as the spare parts catch up will provide us the right number of hours and that runs around 18½ to 20 hours a month.

General **Allen**. I would have to answer that question in the negative, Senator Goldwater. The airlift mission is getting more sophisticated, more complex every day. With the completion of the C-141 stretch program, we now have a capability to aerial refuel all our C-141's and avoid the problems of staging bases in third countries during deployments.

In order to take full advantage of that inherent capability now in the airplane, we calculate we need a total of three aircrews per airplane qualified and current in aerial refueling. We have a total of four crews per airplane assigned and flying them, but we can do the job as far as aerial refueling is concerned with three crews per airplane.

One crew would fly over, a second crew fly back, the third crew would then fly over. We do not have enough flying hours available in the Military Airlift Command or in General Davis' tanker force to accommodate that level of training. As a result, we do not have three crews per aircraft qualified and current in aerial refueling. As a matter of fact, we don't have anywhere near that number. It looks like it is going to be a number of years before we can hope to get to that level.

Concurrently, in the airdrop mission, we have a requirement for a substantial number of crews qualified and current in airdrop techniques in order to support Army requirements. As a result of the negative growth in fiscal year 1983 flying hour O&M funding which we experienced, I have recently found it necessary to cut back on that training and stretch out for at least a couple more years the attainment of that requirement.

So, my answer to that is absolutely no. I do not have enough flying hours to do the job that is required of the airlift force.

Senator **Goldwater**. General Creech did not get a chance to answer, but I think General Gabriel is speaking more for General Creech's command than the other two.

Is that correct?

General **Creech**. That is correct.

Chairman **Tower**. Senator Levin?

Senator **Levin**. Thank you, Mr. Chairman.

ALCM-B

Mr. Secretary, you indicated that last year you made an estimate as to how many of the ALCM-B's you would be buying in the 1984 budget. You told Senator Cohen that was your intention at that time.

Secretary **Orr**. Yes.

Senator **Levin**. Did you tell anybody in the Congress anything to the contrary last year?

Secretary **ORR**. No; not to the best of my knowledge.

Senator **LEVIN**. So the statement that the Pentagon secretly told a few members——

Secretary **ORR**. I don't know about that statement. I didn't tell anybody in the Congress that I, myself, understood you to be referring to the time we brought the budget in 1 year ago.

In actual answer to that particular statement, I don't know anyone who came over here to speak to Congress, but I am not at all certain that the information, when the budget was finally proposed, was not released to some Senators. I did not do it myself.

Senator **LEVIN**. You don't know that anybody notified any Member of Congress last year that the projection for 1984 purchases was other than what was stated?

Secretary **ORR**. I don't know that. I certainly would not be too surprised to learn that it had been sent over to the Hill after the decision on the budget was made, Senator.

Senator **LEVIN**. Who did the cost study, the independent study called "The Affordable Acquisition Approach," the A^3 study?

Secretary **ORR**. That was done under our Systems Command by a group of people who were put together by the command including knowledgeable people who had served in a procurement capacity.

Senator **LEVIN**. Are you familiar with that study?

Secretary **ORR**. Yes, sir, I authorized it.

Senator **LEVIN**. Going back to this document I referred to before, didn't that particular study estimate that the per unit cost of the B-1B would be $285 million?

Secretary **ORR**. Yes; I have been informed from the back. If you will note from the chart that shows the cost of the A and B, they brought forward $8 billion that was spent in previous years on the A.

Senator **LEVIN**. Didn't they estimate that the B-1B would cost $285 million per unit?

Secretary **ORR**. If you include the moneys spent on the A, but our estimate of $205 million was for the B.

Senator **LEVIN**. That includes the development cost?

Secretary **ORR**. That is correct.

DENSE PACK SYSTEM

Senator **LEVIN**. General, can you indicate that you supported dense pack?

Do you still support dense pack?

General **GABRIEL**. I would rather withhold that as the chairman says until we have the Commission report.

Senator **LEVIN**. Are you making a recommendation to the Commission?

General **GABRIEL**. No; I am making no recommendation to the Commission. I have talked with them. I have made no recommendation. The Air Force is supporting their work.

Senator **LEVIN**. Is the Air Force going to make a recommendation to the Commission as to what it thinks is best?

General **GABRIEL**. No; we are not.

Senator **LEVIN**. You are not giving your opinion as to what you think is the best system?

General **Gabriel**. We would not. They are getting all the best information they can possibly get. They are going to make their judgment in the report to the President.

Senator **Levin**. If you were asked for recommendations, would you recommend dense pack at this time?

General **Gabriel**. I would not want to answer a question like that.

Senator **Levin**. Mr. Secretary, have you made a recommendation to the Commission?

Secretary **Orr**. I have not appeared before them.

Senator **Levin**. Have you made a recommendation to them?

Secretary **Orr**. Not in writing or in person, no recommendation.

Senator **Levin**. Overall, will the B-1B have better penetrating capability than the cruise missile?

General **Davis**. Yes; by far.

Senator **Levin**. So when you add the ECM, cross-section, everything put together, you believe that the B-1B is going to have better penetrating capability than the cruise missile?

General **Davis**. Yes.

Senator **Levin**. Does that include the upgraded cruise missile we are talking about?

General **Davis**. I would not comment on that until we have a closed session.

Senator **Levin**. When you said a moment ago yes, were you referring to the cruise missile?

General **Davis**. I was referring to all cruise missiles.

Senator **Levin**. You left the impression that that might include the upgraded one. I have to find it out since it is not on the record as to whether it included the upgraded one.

Did your answer include the upgraded one?

B-1B BETTER PENETRATING CAPABILITIES

General **Davis**. The B-1B will have a better penetrating capability than our cruise missiles that we have on the books now, yes.

Senator **Levin**. You are not commenting on the other cruise missile which was referred to earlier?

General **Davis**. That is right.

Chairman **Tower**. Would you yield on my time?

This is a matter that is extremely sensitive, compartmentalized. I would prefer that we not pursue it in this session. There will be an opportunity for a closed session. I would suggest that the members not press the witnesses on this issue right now.

Senator **Levin**. Thank you, Mr. Chairman. I will not pursue that.

Let me talk about the Stealth bomber, the ATB bomber.

Will the threat of that bomber, which we are funding, it is in the budget, require the Soviets to make air defense efforts right up to the time that it is deployed, air defense efforts against it?

Secretary **Orr**. I would hope it would require them to make air defense efforts long after it is deployed.

Senator **Levin**. Right up to the time it is deployed?

Secretary **Orr**. Not only up to, but thereafter.

Senator **Levin**. So that they could not spend all of their air defense time and money on defending against the B-1B or the cruise missile. They are also going to have to put some money against the Stealth bomber, is that correct?

Secretary Orr. Because of the threat of our triad they have to spend their money to defend against all three legs of the triad. The more flexibility we have in any one leg, the more it complicates their defense.

Senator Levin. That includes the Stealth bomber?

Secretary Orr. Yes.

Senator Levin. Thank you, Mr. Chairman.

Chairman Tower. Senator Kennedy?

Senator Kennedy. Gentlemen, would you feel obligated to accept the recommendations of the Commission?

General Gabriel. No, I won't. I assume when the Commission makes its report, the Chiefs will be asked to discuss it with the President.

Senator Kennedy. You will make whatever observations you find appropriate at that time. You don't feel now that you are committed to accept whatever they recommend?

General Gabriel. No; I don't feel that we are committed to that right now.

ARMS CONTROL CATEGORIES

Senator Kennedy. I know the chairman wants to reserve the response to the question from Senator Cohen until some meeting with the Arms Control and Disarmament Agency personnel in regard to arms control in space.

The reason I raised that is that, as I understand the geosynchronus satellites in space and the importance they have in terms both of warning and of conducting important aspects of our triad, I would think that their preservation and their protection would be something of enormous importance to the Air Force.

General Gabriel. I agree with that completely and so would General Davis.

Senator Kennedy. To the extent that there is development by the Soviets in this area, I would imagine that this is something which you take extremely seriously and I suppose there are a variety of ways of dealing with it.

One is in the area of arms control. There are other ways I imagine that are classified and that you would like to share with the members of the committee. One of those clearly is in the area of arms control.

That is why I was wondering whether you had been in touch or whether the Secretary had been in touch with the Arms Control and Disarmament Agency to see whether there were recommendations that the Air Force could make to try to insure that those satellites in space are going to be secure.

Secretary Orr. Senator, we have been in touch with them, but I would not want to talk specifically on that issue. We have had presentations by Mr. Rowny and Mr. Nitze and have gone over a number of arms control categories. We did not dwell specifically on space.

General Davis. Specifically, the talks were underway when the thing called Afghanistan occurred and then they were broken off.

Senator KENNEDY. As I understand also, part of the problem is in regard to their view of the value of the space shuttle as well.

General GABRIEL. They are trying to capture the space shuttle; yes.

Senator KENNEDY. At least I would hope we will have an opportunity to explore that, Mr. Chairman, at some time with the appropriate authority.

TACTICAL AIR DEPLOYMENT

Back to the tactical air, General. Just in regard to the deployment of that tactical air, where is it going to be deployed?

I think I asked you that earlier. I was not quite sure exactly what your response was. Where in the world will that be deployed and how will we use the additional wings?

General GABRIEL. Right now we have overseas, deployed in Europe, a large number of wings as well as a small number in the Pacific.

General Creech has most of those forces stationed now in the United States, but the forward deployed forces will be joined wherever the action takes place by the augmenting forces from the United States—whether it be in Southwest Asia, Europe, Korea, Northeast Asia or Southeast Asia. We have at least four treaties——

Senator KENNEDY. Where do you plan to employ them now?

General GABRIEL. Right now they would be deployed in the States.

General Creech would take these forces as we built up to the 40. As he says, we have the equivalent of a little over 35 right now. The additions would be deployed in the States.

Senator KENNEDY. Used on a contingency basis?

General GABRIEL. Used as augmenters. That gives us a flexibility to go any way. If we have a crisis, we will be able to send them in any direction.

Senator KENNEDY. Now at least they would be stationed here in the United States, they would be used as an augmenting force rather than to fill in what are gaps in the tactical capability overseas?

General GABRIEL. That would be my plan until there is a reason to change. We talk to the CINC's all the time in the theaters and they are asking obviously for more forces to be stationed and forward deployed overseas. We are going to add a couple of F-16 squadrons in Japan soon.

NATURE OF THE THREAT

Senator KENNEDY. How often do you talk to the other Chiefs about the nature of the threat and how is that coordination really working out?

General GABRIEL. With the other Chiefs, of course, we meet about three times a week, and very often we talk about the threat. I am talking about the threat at all levels, including what is going on in Central America. We meet three times a week and more often than that if contingencies arise.

We bring the Chiefs in from the field, commanders in the Pacific, commanders in Europe and SOUTHCOM. We meet with them frequently. They have all been in to tell us what their problems are in their own area and how we can improve.

Senator **Kennedy**. Thank you.

Chairman **Tower**. To follow on Senator Kennedy's question, we are going to have a net assessment briefing tomorrow which I think will be of great interest to all Senators. I think that this will be a good opportunity to pursue that line of questioning, Senator Kennedy, which I think is enormously important.

Senator Bingaman?

Senator **Bingaman**. Thank you, Mr. Chairman.

B-1B

Let me take one more swipe at the line of questioning I was pursuing a little earlier in regard to the relative value of the B-1B as compared to additional fighters.

The Air Force point of view, as I understand both Secretary Orr and General Gabriel, indicated that the basic answer was that it was administration policy to buy the B-1B bomber.

Could I get a professional judgment from General Gabriel or General Creech as to the value of those 100 B-1B's as compared to 1,000 additional fighters in both fighting capability and deterrence.

General **Gabriel**. We are in two different ballparks, nuclear exchange versus conventional role. We have to have capability to deter in each of those. It is a judgment call as to how many will suffice in both areas.

As General Creech pointed out, we have neglected for a while our strategic capability. The first B-52 rolled off the lines 31 years ago.

Senator **Bingaman**. Is that B-52 the same as the one that rolled off the line 31 years ago?

General **Gabriel**. You mean any modifications?

Senator **Bingaman**. Yes.

General **Gabriel**. It was designed for high altitude and they had to be reworked for low. A great deal of work has gone into it, including avionics and ECM.

The other side has not been constrained about the defenses they have thrown up against it. So we are working on the same platform, and we have to work on the ECM and all our countermeasures to go against a modern-day threat.

Senator **Bingaman**. You are not suggesting that the B-52 is the same plane that rolled off the assembly lines 31 years ago?

General **Gabriel**. The platform is the same except, obviously, the beefing up of the wings in order to let them fly low.

Senator **Bingaman**. Otherwise there is no change that you are aware of?

General **Gabriel**. No, other than what we just added with the air-launched cruise missile.

I will let General Davis back me up on that.

General **Davis**. Externally except from the nose, with the devices put on the nose, it looks the same as the one that rolled off the assembly line. It has had structural mods so that the airframe could survive at low level. It has an ECM modification. We are just now modifying it to accommodate the real world of technology, such as a solid-state cruise missile.

We were talking earlier about vendors making parts. We are talking about the tube technology, Senator. The reason we are going to solid state is that vendors simply don't make that old equipment any more. Nobody manufactures tubes. So the airplane is different.

Is it 20-percent different? Ten-percent different? If I had to give you a round number, I would say the airplane we are flying today is about 75-percent common to when it came off the assembly line.

BOMBER COMPARISON COSTS

Secretary **Orr**. Senator, in the chart which I got from Senator Levin which depicts the B–1A and B, there is a rather interesting comparison. In the upper left-hand corner of that chart there are air superiority fighters. One began in 1951 at a $2 million cost according to the chart, while the B–52 started the same year with a $20 million cost. Apparently, 10 times was not uncommon throughout history. At least 30 years ago it was the same proportion, the bomber costing 10 times what a fighter did.

The F–100 is long gone. The B–52 is not only serving now, but it is projected to serve at least another 10 years or more, so it is not a bad buy.

Senator **Bingaman**. Would you say that a reasonably good rule of thumb that we can work with in defense procurement is a ratio of 10 bombers to 1 fighter?

Secretary **Orr**. My people in the back indicate it is somewhere between 8 to 1 and 10 to 1 cost relationship.

Senator **Bingaman**. Thank you, Mr. Chairman. That is all I have.

Chairman **Tower**. Gentlemen, thank you very much for a very comprehensive and instructive testimony. Particularly, I am glad to see the commanders of the various aspects of the Air Force effort. I think that has contributed immeasurably to the hearing today.

Mr. Secretary, thank you very much.

General Gabriel, General Creech, General Allen, General Davis, we appreciate your appearance.

Senator **Levin**. Could we keep the record open?

Chairman **Tower**. The record will be kept open until 5 p.m. this afternoon for submission of additional questions to be responded to in writing for the record.

[Questions with answers supplied follow:]

Questions Submitted by Senator John Tower, Chairman

STATUS OF THE B–1B PROGRAM

Senator **Tower**. General Davis, would you give us a status report on the B–1B program? Is it still ahead of schedule and under cost? Have economies been achieved in the program, and are any further cost-saving initiatives under consideration by the Air Force?

Answer. The B-1B program has been progressing very well. After a year of full scale development (FSD) and production we are ahead of schedule and within cost.

Program status is very encouraging. Contractor (FSD) efforts range from 20 to 50 percent complete. Further contracts for the first two production lots have been executed, and Rockwell International is over 20 percent complete in its production effort. The contractors' internal schedules indicate that the first aircraft may fly as much as five months ahead of schedule.

Several vigorous initiatives have been instituted that help to make this excellent performance possible. These include strict change control, streamlined management, and prompt reporting or programmatic issues to the highest levels of the Department of Defense. We are confident that the program will remain within cost and on schedule.

Economies are being achieved in several ways. First, the B-1B baseline configuration uses several subsystems which have already completed RDT&E. The B-52 offensive avionics system and the improved F-16 forward looking radar are examples of this. We also derive substantial logistical benefits from using subsystems already fielded on operational weapon systems because we can take advantage of common support equipment and established supply lines. We are also pursuing support equipment and established supply lines. We are also pursuing additional manufacturing and contracting initiatives, to include multiyear procurement and new production technologies.

In summary, I am confident that the B-1B baseline cost estimate of $20.5 billion (fiscal year 1981 dollars) is achievable as certified by the President to the Congress in January 1982.

SPACE BASED LASER PROGRAM

Senator Tower. General Gabriel, would you highlight for the committee, the administration's space-based laser program for fiscal year 1984?

Are we moving as expeditiously as possible with this effort?

Could substantially more funds be effectively used by the Department of Defense if they were to be added by the Congress to the fiscal year 1984 budget?

Answer. The purpose of the DOD space-based laser technology program is to provide an informed decision, in the late 1980s, on whether to proceed with the validation phase of a laser weapon system. DARPA's triad program provides the major technological development, and requires the majority of the funding. The Deputy and Assistant for Directed Energy Weapons, Under Secretary of Defense Research and Engineering, is responsible for overall guidance of the DOD space laser technology program. The Air Force is responsible for resolving weapon system issues. This response will address only the Air Force part of the program.

The primary effort in fiscal year 1984 is obtaining and analyzing vulnerability and hardening data. We will perform tests to determine the difficulty of destroying targets such as aircraft and ballistic missiles. In addition, we will investigate what countermeasures an adversary might take to protect his aircraft and missiles against our space-based laser, and what effect this would have on the required performance of our laser system.

The second major area of effort in fiscal year 1984 is system definition. We must determine what assets (surveillance; launch; command, control, and communications) are required for a space-based laser weapon system besides the laser weapon platform.

The third area of investigation in fiscal year 1984 is utility. We will begin to develop system requirements and initial operational concepts for the most promising mission. Total costs and cost-effectiveness will be determined for each proposed system.

The fourth major effort in fiscal year 1984 is survivability. We must develop means of insuring the space-based laser system can perform its mission when confronted with active and passive countermeasures.

The Air Force and the other participants in the space-based laser program, the Army and DARPA, believe the current program is a prudent approach for addressing the key technical uncertainties.

We do not believe additional funds are required for the Air Force in fiscal year 1984. However, we have slipped our program one year to compensate for the congressional decision not to approve fiscal year 1983 funding.

RELATIVE EFFORTS OF U.S. AND U.S.S.R.

Senator Tower. General Gabriel, how would you compare the relative efforts of the United States and the Soviet Union with respect to space-based lasers?

General **Gabriel**. We believe the Soviet Union is [deleted] the United States in the development of a space-based high energy laser weapon. This [deleted] is due to the following three factors:

1. The [deleted] Soviet resource commitment to high energy lasers as compared to our effort. (Estimated to be [deleted] the United States level of effort.)
2. The focus in the Soviet Union on development of [deleted].
3. The apparent [deleted] of the Soviets to [deleted] capabilities as compared to the [deleted] in the United States.

There is [deleted] The Soviet effort appears to be [deleted] is judged to be sufficiently advanced to permit launching of a [deleted] laser system in the [deleted] or [deleted] could conceivably be tested by the Soviets as early as [deleted.]

The U.S. space-based laser program is in the study and research phase. DARPA is overseeing [deleted]. Included are [deleted]. Other relevant technologies such as [deleted] are also being pursued.

SPACE BASED LASER PROGRAM LIMITED

Senator **Tower**. General Gabriel, is the U.S. space based laser program limited by funding or technological constraints?

Answer. DARPA is responsible for the majority of the technology developments in the DOD space laser program and is best qualified to comment on the funding required for those efforts. The Air Force has adequate funding per year to resolve the weapon system issues within our responsibility.

NEGOTIATING A BAN

Senator **Tower**. General Gabriel, what dangers do you see in negotiating a ban on space weaponry at this point in time?

Answer. It is important that we proceed cautiously in the area of space arms control given the nature of the Soviet space threat, the obstacles to effective verification, and the possibilities of breakthroughs in technology which could drastically change the role space would play in our national defense. For example, the Soviets already have an operational antisatellite (ASAT) capability, but we do not. As history shows, the Soviets will never negotiate an advantage away.

The best approach at this time is to continue to study space arms control options and consider equitable and verifiable measures that would ban or otherwise limit testing and deployment of specific space weapons systems should those measures be compatible with U.S. national security interests.

ASAT

Senator **Tower**. General Gabriel, how would you compare the U.S. antisatellite (ASAT) capability with that of the Soviet Union?

Answer. The Soviet Union has had an operational ASAT since [deleted]. Their [deleted] orbital interceptor has been tested [deleted] times, most recently in [deleted] and [deleted]. We believe the sytem has a moderate probability of kill against all low altitude U.S. satellites that do not take countermeasures when attacked.

The U.S. currently has no ASAT capability. The system we are developing (the air-launched miniature vehicle ASAT) will be operational in fiscal year [deleted] and will be effective against high-priority, low-altitude Soviet satellites. Flight testing will begin [deleted].

MILITARIZE SPACE

Senator **Tower**. General Gabriel, how would you respond to the charge that the U.S. has embarked on a program to militarize space?

Answer. We are not embarked upon a program to militarize space, but we must not ignore reality either. As in the 1920's when we were just learning about the possible uses of airpower, today we are on the threshold of military uses of space. And while some might believe that space can be kept a sanctuary and relatively free of military systems, history tells us that each time new opportunities present themselves, nations exploit them to gain military advantage. While our Nation will continue to pursue avenues to foster the peaceful use of space, we and the Soviets are dependent on space for warning, communications and command and control. This dependence will grow. At a minimum, we have to insure that our space systems can survive and operate in a hostile wartime environment.

With changes in the environment and technological advances, there will be a need to expand space support operations with on-orbit resources which could include space stations, shuttles, orbital transfer vehicles, energy generators, and manufacturing processes.

As national use of and investment in space increases, protection of our resources will become essential. Because such protection introduces the possibility of space-to-space, space-to-earth, and earth-to-space operations, it is in our national interest to be prepared to accomplish them. Such preparations also give us a hedge against technological surprise, and insure we are not placed into a position of disadvantage by Soviet initiatives.

EMP THREAT

Senator Tower. General Davis, to what degree does the Strategic Air Command (SAC) consider electromagnetic pulse (EMP) a threat to the survivability of our command, control, and communciations (C^3) network? How does the fiscal year 1984 defense budget address this problem?

General Davis. The EMP threat would severely disrupt unprotected radio and landlines communcations to all SAC forces. An end-to-end approach to EMP-harden command centers, communications links and weapon systems has been adopted to insure survivability of our C^3 network.

In previous years, within our budget, we have EMP hardened C^3 equipment in the HQ SAC Command Post and hardened the low frequency (LF) emergency message transmitter at Silver Creek, Nebraska.

The President's 1984 budget contains several additional essential EMP hardening programs. The groundwave emergency network (GWEN) will provide an EMP protected communications link between HQ SAC, the National Command Authorities and SAC missile LCC's and aircraft wing command posts. At the aircraft wing command posts, the aircraft alerting communications EMP (AACE) upgrade program will EMP harden selected communciation systems to insure EMP hardened alerting and message communications to the alert bomber and tanker forces. Programs to EMP harden selected C^3 equipment on EC-135s and B-52 G/Hs will enhance their suvivability to EMP. Analysis of FB-111 EMP test results is still ongoing. Together, these programs will dramatically increase the EMP survivability of the SAC C^3 Network.

CHEMICAL WARFARE DETERRENCE

Senator Tower. General Creech, General Allen, as you know, one of the particularly contentious issues of fiscal year 1983—and one which will, in all probability prove emotional to fiscal year 1984 as well—is the administration's request to enhance our ability to deter chemical warfare against our personnel. Would you discuss the degree to which you believe the threat of such attacks against U.S. forces under your command poses a real danger? How high a priority do you believe we should attach to the improvement of our ability to deter chemical warfare?

General Allen. The capability of Soviet forces to conduct sustained chemical warfare offensive operations is well documented. They are using chemical weapons in Afghanistan. They are well trained and equipped to conduct offensive chemical warfare (CW) operations. Intelligence information indicates the Soviets are prepared to use chemicals against any opposing force to obtain their objectives.

The Air Force CW program is designed to deter the Soviets from using their offensive capability. Concurrently, we need to insure that our forces can survive and have the capability to sustain operations during and following a chemical attack. [Deleted.] The physical degradation on crew members and ground support personnel, coupled with the problems of dealing with contaminated aircraft, passengers, and casualties, would [deleted].

Our current [deleted] is limited; we cannot engage and degrade deep targets with a [deleted]. We are also limited by the [deleted]. We must proceed with the development and procurement of [deleted] that will provide us a capability to deter Soviet use of chemical warfare agents against U.S. and allied forces.

CHEMICAL WARFARE THREAT

Senator Tower. General Creech, as you know, one of the particularly contentious issues of fiscal year 1983—and one which will, in all probability, prove emotional in fiscal year 1984 as well—is the administration's request to enhance our ability to deter chemical warfare against our personnel. Would you discuss the degree to which you believe the threat of such attacks against U.S. forces under your command poses a real danger. How high a priority do you believe we should attach to the improvement of our ability to deter chemical warfare?

General **Creech.** The Soviet chemical warfare (CW) threat to U.S. and allied military forces is real and serious. The Soviets are acknowledged to be significantly ahead of the United States in the development of toxic chemical and biological agents, the means to use them offensively and the means to operate in a chemical environment. Their capability is extensive, varied and operationally fielded. They have a large and diverse stockpile of CW agents that can be delivered by aircraft, missile, and artillery. Their defensive capability includes decontamination equipment, clothing, equipment and facilities for individual and collective protection. Their training for CW is high priority and comprehensive, including the use of live agents in some exercises.

Although the U.S.S.R. is a signatory to international agreements banning the use of chemical and biological agents, they have repeatedly demonstrated, most recently in Kampuchea and Afghanistan, that such agreements are easily put aside or circumvented when major national objectives are at stake.

The Tactical Air Forces are particularly vulnerable to CW attack because of fixed air bases and other key installations and facilities. We cannot move our units out of a contaminated environment and continue to operate effectively. Although protective clothing and shelters are being procured, the problems of operating in a contaminated environment are of such a magnitude that sortie generation and other operational capabilities will be severely degraded even if personnel casualties were minimal.

The extensive Soviet CW posture provides the option for initiating CW against air force facilities. Warning can vary from essentially none to full tactical and strategic warning of air attack. The choice of targets would depend on the overall objective behind escalating the conflict to CW, but our air bases, command, control, and communications nodes and nuclear means would be high on the Soviet attack list. We believe that the greatest, and perhaps only, credible deterrent to the Soviet CW threat is a visible U.S. chemical retaliatory capability; that is, a capability to conduct theater-wide chemical warfare that the Soviets will respect. The Air Force capability to deploy and, if necessary, employ chemical agents must be necessary factors in a Soviet decision to consider chemical warfare. Today, the advantage is decidedly theirs.

Although our chemical warfare doctrine acknowledges the importance of both defensive and offensive capabilities, in practice only chemical defense measures are being developed and fielded. While this emphasis has evolved more from our national moratorium on the development of chemical agents and munitions than from a reflection of Air Force needs, it appears to have resulted in a widely held belief that, given sufficient CW defense capability, the Air Force can continue to meet tactical air mission requirements in a CW environment. The facts are, however, that we currently can measure our CW defensive capability in [deleted] and even a massive monetary and research effort could only [deleted]. On the other hand, comparatively little effort is required for a credible offensive capability. A defensive CW posture is not an active deterrent and can give us only limited staying power. In effect we have put ourselves in the position where they can use CW weapons and we can't. Chemical warfare is an entirely new dimension of warfare that we cannot effectively respond to with iron bombs. Because the Soviets have a potent CW force and because our existing CW inventory is limited and aging, the nuclear threshold has been significantly lowered. First use of CW by the Soviet Union will force us to a choice between surrender or equivalent escalation. We can't fight a one-sided war and without a viable, credible offensive CW capability, our only option would be to counter with tactical nuclear weapons.

B-52 ACCIDENTS

Senator **Tower.** Would you provide the committee with a report on the recent spate of accidents involving B-52's. In particular, would you identify the degree to which—if any—age or chronic maintenance problems have been identified as contributing significantly to these unfortunate mishaps? Has a pattern been identified? What steps have been taken to correct any systemic problems which might have arisen?

General **Davis.** SAC has lost two B-52's in 1982 and thus far one in 1983. There is no pattern to these losses, and it should be emphasized that despite the two B-52 losses, SAC's destroyed aircraft rate for flight mishaps in 1982 was the third lowest in our history.

The first loss in 1982 was a result of a failed tire. The debris from the tire severed oxygen, hydraulic, and electrical lines causing the fire which destroyed the aircraft. We are still investigating the reasons for tire failure, including an evaluation of the antiskid system. The second loss of 1982, at Mather, resulted in a review of the operations, supervision, and maintenance areas. Corrections to appropriate procedures have been made where required. The first mishap of 1983 was a fuel tank explosion caused by an undetermined source of ignition. We are continuing to investigate the cause and will make corrections as necessary. As a precaution, we are eliminating two fuel pumps which have undesirable electrical characteristics.

Our continuing goal is zero accidents and all our maintenance and operations procedures are geared to achieve this goal.

QUESTIONS SUBMITTED BY SENATOR STROM THURMOND

COST INCREASES

Senator **THURMOND**. Mr. Secretary, would you provide for the record an analysis of cost increases in Air Force programs that have resulted from congressionally mandated changes in your programs during the last three fiscal years?

ANSWER. The Air Force does not routinely collect data that would readily provide a direct correlation between program cost increases and congressionally mandated changes. Even the Selected Acquisition Reports (SARs) which we provide to the Congress are not always keyed to congressional action. We have, however, tried to identify some of the major (over $10 million) program cost increases which stand out over the past three years. They are:

Congressional action and approximate cost impact

	Million
F-15: Directed fiscal year 1982 and 1983 quantity reductions which increased the cost of remaining aircraft	$81.0
A-10: Directed to develop and procure 30 two-seat versions of the A-10 aircraft	58.2
Position Location Strike System (PLSS): Fiscal year 1981 congressional cut combined with fiscal year 1983 direction to separate the strike and location missions of the program have necessitated program restructure and stretchout	50.8

INCREASED SPECIAL OPERATIONS FORCES FUNDING

Senator **THURMOND**. General Allen, I am pleased to see that the Air Force's special operations forces have been transferred to the Military Airlift Command. What plans do you have for increasing the funding for these forces in the years ahead in light of the administration's increased emphasis on these forces?

General **ALLEN**. This budget request contains three programs which will significantly improve the capability of our special operations forces (SOF) in the years ahead. The procurement of new MC-130 combat Talons, the procurement of HH-60D helicopters, and the class V modifications to the current SOF aircraft are the first steps in our planned improvements. In addition to the enhancements already contained in this budget request, we have plans to do several other things to enhance the capability of our SOF. First, we plan to provide additional [deleted]. We also have plans to procure the additional tanker capability that is necessary to support the programed force increase of SOF helicopters, improvements to SOF communications equipment to insure compatibility with the unconventional warfare task force headquarters, and additional third-generation night-vision goggles. We are also examining other long-range enhancements to the SOF, including the possible procurement of the advance vertical-lift aircraft (JVX) and other improvements to the AC-130 gunships.

PROCUREMENT OF H-53 ECHOS

Senator **THURMOND**. General Allen, are you planning to request any CH-53 Echo model helicopters to enhance our special operations capability?

General **ALLEN**. We are studying the possible need for H-53 Echos. In general, the HH-60D, with its night, adverse weather, and air refueling capability, will complement current Pave Low HH-53H's to satisfy special operations vertical lift requirements in the late 1980's. The Air Force is also pursuing procurement of the joint service advanced vertical lift aircraft (JVX) as an H-53 replacement to complement HH-60D's and satisfy special operations heavy lift requirements in the mid-1990's.

TACTICAL AIRLIFT REQUIREMENTS

Senator **THURMOND**. Mr. Secretary, would you provide for the record an outline of tactical airlift requirements and current shortfalls?

ANSWER. Recent decisions on intertheater airlift (C-5 and KC-10 buys, and CRAF), sealift, and prepositioning will help accelerate the arrival of forces to the theater. However, we still do not have sufficient intratheater assets to get units to battlefield locations. Today's total intratheater movement requirements exceed our capability by at least 50 percent. The exact determination of intratheater airlift requirements is a complex analytical task because of the wide range of scenarios and other factors involved. The combat CINC's and the Military Airlift Command are studying theater movement requirements and capabilities now. The study is expected to take about 2 years to complete.

Today we have no intratheater capability to airlift outsize cargo, nor can we deliver cargo directly from the CONUS to forward, small, austere airfields in the theater. Our C-17 program is designed to correct these deficiencies.

GUARD AND RESERVE EQUIPMENT IN FISCAL YEAR 1984 BUDGET

Senator **THURMOND**. Mr. Secretary, the Congress has always shown support for procurement of Guard and Reserve equipment. Would you provide a list of the equipment in the fiscal year 1984 budget that is designated for the Guard and Reserve?

Mr. Secretary, would you provide a list of equipment that would "fall-out" to the Guard and Reserve through modernization of the active Air Force during fiscal year 1984.

ANSWER. To improve the Air National Guard, we have included the following initiatives in the fiscal year 1984 request:

2—F-106 units convert to F-4's (18 at Fresno, CA and 15 at Jacksonville, FL).

3—F-4 units will increase aircraft inventory: McConnell AFB, KS: 36 to 44; Kingsley Field, OR: 4 to 12; Dobbins AFB, GA: 18 to 24.

1—F-16 unit increases from 18 to 24 aircraft (McEntire ANG Base, SC).

1—C-130E unit converts to C-130H (Anchorage, AK).

Fiscal year 1984 AF initiatives for the Reserve are as follows:

Convert F-105 unit to F-16s (18 at Hill AFB, UT).

Convert F-4C unit to F-4D (18 at Homestead AFB, FL).

Increase aircraft inventory from 18 to 24 F-4D (Bergstrom AFB, TX).

Convert 16 C-7A to 8 C-130E (Maxwell AFB, AL).

Increase Reserve manning to support increases in C-5B and KC-10 programs.

Establish an A-10 tactical fighter training squadron at Barksdale AFB, LA.

REPLACE F-106'S

Senator **THURMOND**. General Gabriel, I note that the Air National Guard is responsible for two-thirds of the squadrons committed to the Air Defense of the continental United States. What are your plans to replace the Eisenhower Vintage F-106's in the Air Guard?

ANSWER. Modernization of the North American Air Defense fighter force is one of several measures announced by President Reagan in October 1981 as part of his strategic modernization program. Currently, there are five squadrons of F-106's in the Air National Guard. Two squadrons will convert to F-4E's during fiscal year 1984 and two squadrons will convert to F-16's during fiscal year 1987. The last F-106 squadron will convert to F-16's in fiscal year 1988. We are also looking into placing F-15's in Air National Guard air defense units.

F-16 MODIFICATION

Senator **THURMOND**. General Gabriel, you indicated that in the near future the F-16 will have the same radar capability as the F-15. Can you tell me what that modification will cost both for the radar and the fire control system?

ANSWER. As part of the F-16 multinational staged improvement program (MSIP), we are making major improvements to the F-16 radar. However, the improved F-16 radar will still not be equal to that of the F-15 across the board. To complement radar improvements, the fire control computer will also be upgraded as part of the MSIP, thereby increasing computer memory and computation speed.

The fiscal year 1984 unit recurring cost for the improved radar is $1.4 million, an increase of $856 thousand over the cost of the current F-16 radar. The unit recurring cost in fiscal year 1984 for the new fire control computer is approximately $85 thousand more than the cost of the current computer. These improvements will be phased into production beginning in July 1984 with full rate production in March 1985. The possible retrofit of the improved radar into F-16A's is still being evaluated and would be addressed in future budgets.

QUESTIONS SUBMITTED BY SENATOR JOHN WARNER

REDUCING READINESS GOALS

Senator WARNER. What would be the quantitative reduction in manpower requirements and in deployability or—in the case of deployed units—combat effectiveness, permitted by a reduction in the readiness goals (C-ratings or ALO's) for a representative group of units?

REPRESENTATIVE SLOW-DOWN

What would be the reduction in active manpower requirements of a representative slow-down in planned unit activations? Show the planned activation schedule by quarter and compare that with the stretch-out.

REDUCTION IN ACTIVE MANPOWER REQUIREMENTS

What would be the reduction in active manpower requirements and force deployability of a representative transfer of missions that is, force structure) from the planned active force to the Reserve and Guard? Show how many active personnel reductions would be made possible by the active structure reductions (both combat and support) and how many personnel (if any) would be added back in for the reserve units. Also, show the changes in other manpower requirements (for example, part-time reservists and full-time technicians).

MANPOWER REDUCTION OF 5 PERCENT

What would be the impact on military capability of a representative combination of the alternative approaches cited in questions 2, 3, and 4 that would produce an active manpower reduction of 5 percent of the proposed end-strength for fiscal year 1984? What would be the effect of such a reduction on reserve, technician and civilian strength requirements?

What would be the impact on military capability of a representative combination of the alternative approaches cited in questions 2, 3 and 4 that would produce an active manpower reduction of 3.2 percent of the proposed end-strength for fiscal year 1983 with no growth in fiscal year 1984? What would be the effect of such a reduction on reserve, technician, and civilian strength requirements?

NET SAVINGS

What would be the net savings in fiscal year 1984 outlays of the examples in questions 5 and 6?

What actions would the Air Force take in fiscal year 1983 if the fiscal year 1984 manpower request were reduced by 5 percent?

What would you expect the impact to be on the following areas of a reduction such as that described in questions 5 and 6?

a. Base structure.
b. Enlisted and officer personnel management and morale.
c. Rotation base.
d. Force readiness, both near-term and far-term.
e. Ability to meet national commitments, especially the D-day commitment to NATO.
f. Political-military perceptions among allies and potential adversaries.

Secretary ORR. The questions you have asked regarding reduction of active manpower and transfer of missions to the Air Reserve Forces (ARF) are currently under study in OSD. The first phase of this study will be completed in approximately 6 months. We will forward information from this study as it becomes available.

The issues involved in arriving at the proper active/ARF force structure are quite complicated. Transfers to the ARF must be done in full cognizance of the time required to adapt operational plans, construct facilities and draw down active forces. The Reserve components can only grow as fast as they can procure and train personnel. We must also consider that recruiting and training reservists at isolated bases may be more difficult compared to bases in more urban areas.

Another consideration is force mix. There are no simple "rules of thumb" which can be used to determine the proper mix of active and Reserve forces for the Air Force. ARF capability is, to a large degree, dependent on the Active Force for initial training, equipment procurement, logistics support and a recruiting base of prior-service personnel. Too large a shift can upset the balance needed for the Active to provide the support necessary for a strong ARF. Another consideration is that cost benefit of the ARF results from their lower activity rate compared to similar active units. When the mission activity level is the same, it costs just as much to fund the ARF as it does the Active Force. Requirements such as SIOP alert, or non-mobilized deployment lessen the appropriateness of a mission for the ARF and decrease cost benefits of ARF participation.

I might add that it has taken many years for the Air Force to achieve the current state of readiness. The added growth of the Air National Guard and Air Force Reserve personnel, at the expense of the active duty force, would reduce the flexibility that our military forces have achieved. The inability to station Reserve personnel outside the United States impacts the number of personnel available for overseas duty and could erode our responsiveness to worldwide crisis situations. Reducing the size of the Active Force without a proportional decrease in overseas commitments would also require more frequent assignments for active duty personnel overseas and thus create a negative impact on morale and retention.

I am sure you can appreciate the concerns I have expressed as well as the complexity of the problem. We have been working hard on this force mix for over a decade, and we believe the mix is now about right.

WARTIME AUTHORIZED MANNING

Senator **Warner**. Mr. Secretary, what is the current percentage of wartime authorized manning of the Air Force Reserve and Air Guard? Separate by rank.

Secretary **Orr**. Air National Guard (ANG) and Air Force Reserve (AFR) manning levels as of 31 Jan. 83 are shown below. Strength figures include those in training status but exclude those assigned to full-time support positions at the Pentagon and those assigned to other headquarters type functions.

Unit end strengths are programed at approximately 98 percent of authorizations. Both Guard and Reserve percentages are currently less than 98 percent due to increased authorizations associated with mission changes; however, both anticipate reaching or exceeding programed end strength by the end of the fiscal year as they have done for the past four years.

Grade:	*Percent manned*
General	73
Colonel	77
Lieutenant Colonel	72
Major	106
Captain	86
Lieutenant/Warrant Officer	119
Average	93
Chief Master Sergeant	90
Senior Master Sergeant	81
Master Sergeant	140
Technical Sergeant	140
Staff Sergeant	85
Sergeant	60
Airmen	112
Average	96
Overall average	96

The Air Force Reserve percentage of wartime authorized manning is:

Grade	Units percent manned	IMA's percent manned [1]
General	67	51
Colonel	89	71
Lieutenant Colonel	84	50

Grade	Units percent manned	IMA's percent manned [1]
Major	120	82
Captain	88	71
Lieutenant/Warrant Officer	69	[2] 1,165
Average	92	73
Chief Master Sergeant	89	72
Senior Master Sergeant	94	47
Master Sergeant	125	44
Technical Sergeant	206	30
Staff Sergeant	81	20
Sergeant	54	[3]
Airmen	80	[3]
Average	98	36
Overall average	97	[1] 55

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[1] The Air Force Reserve strengths include members assigned to the individual mobilization augmentee (IMA's) program which the Air National Guard does not have. Members are not organized to train as units but are assigned to a specific position with Active Force units. Total authorizations in this program are currently 18,664; however, funding restrictions limit assigned strength to 10,832 in fiscal year 1983. Actual on board manning is 10,241 or 95 percent of program.

[2] 361 assigned against 31 authorized.

[3] 522 Sergeants and 61 Airmen assigned against 0 authorizations.

QUESTIONS SUBMITTED BY SENATOR HENRY JACKSON

SOVIET WEAKNESSES AND VULNERABILITIES

Senator JACKSON. In your joint statement (p.1.) you state "The Soviet arms build-up is shifting the balance of power. With its growing military strength the Soviet Union is more confident in its ability to reach political objectives using force and intimidation. We need only to observe the continuing Soviet brutality in Afghanistan, the political coercion of Poland, and the increasing subversion in Latin America, Africa, and Asia."

Based on this statement, do both of you believe the Soviet Union is moving into a position of invulnerability? Do the Soviets have any weaknesses and vulnerabilities that we can exploit? What programs in this budget will help us exploit those weaknesses and vulnerabilities?

ANSWER. In this era, it is doubtful any nation will be able to reach a position of invulnerability. [Deleted.]

There are a number of potential weaknesses in the Soviet system that can be exploited. These include their doctrinal emphasis on massing forces at the point of attack; the requirement to maintain close control over their engaged forces, thereby reducing flexibility and unit autonomy; and their penchant to fight only when there is an extremely high probability of success. To the extent we can deny them advantages and decrease their confidence in their ability to win, we will enhance deterrence.

The budget we are proposing is designed to reinforce deterrence by addressing both Soviet strengths and weaknesses, thereby reducing Soviet confidence that their forces can accomplish assigned missions. Specific actions being taken include the upgrading of our nuclear forces, improving the readiness and sustainability of our general purpose forces, increasing our airlift capability, and modernizing and expanding the tactical air forces.

SOVIET NUCLEAR SUPERIORITY

Senator JACKSON. In your joint statement (p.2.), General Gabriel, you state that "failure to strengthen our nuclear forces will cause us to face the danger of clear Soviet superiority." Are the Soviets in a position of "superiority" with respect to nuclear forces now? If we fail to pursue modernization of our nuclear forces when might the Soviets achieve a position of "clear superiority?"

ANSWER. The Soviets have acquired important advantages in many significant categories. For example, they are numerically superior in ICBM launchers (1,398 to

1,051), SLBM launchers (963 to 496), and total ICBM and SLBM throw-weight [deleted.]

More disturbing are the trends in strategic force modernization. We are currently aware of more than [deleted] new Soviet strategic systems (offensive and defensive) in various stages of development, including solid propellant ICBM's, improved SLBM's and new long-range [deleted] land attack cruise missiles which could be deployed on land, seaborne, and airborne launchers. They also continue to work on their new long-range Blackjack bomber.

The emphasis they have been placing on quantity has been accompanied by significant qualitative improvements. The improvements they have made in the accuracy of their ICBM's now give them an excellent probability of destroying our Minuteman missiles in a first strike using only about one-fourth of their missile force. Further, as they continue to improve their air defense, our B-52 bombers will become less able to penetrate.

We cannot identify precisely when the Soviet Union could achieve "clear superiority," but if current trends continue the strength of our nuclear deterrent will be seriously challenged. Unless we continue with the President's proposed actions for modernizing our strategic forces, we could well be in a position of clear strategic inferiority by the end of this decade.

SURVIVABLE BASING MODE FOR THE MX MISSILE

Senator **Jackson**. General Gabriel, in your joint statement you comment that the MX missile, "survivably based, will insure the retaliatory power of our ICBMs for many years." (p. 2.) There have been over 30 different basing modes studied for the MX. In your personal opinion, all other things being equal, what would provide the MX with a greater degree of survivability—a basing mode employing use of deception/mobility or a basing mode employing fixed launch sites?

Answer. Properly designed, either type of basing could provide survivability. After a careful examination, the Air Force recommended to the Secretary of Defense and to the President that we develop the closely spaced basing (CSB) mode for MX which relies on fixed launch sites. In my opinion, CSB would work and would present the Soviets with an attack problem so large that deterrence could have been insured well into the future.

The President's Commission on Strategic Forces is closely studying our basing proposal, as well as numerous others both old and new. The Commission's recommendation and the President's subsequent decision remain to be seen.

TACTICAL AIRCRAFT

Senator **Jackson**. Secretary Orr, in your joint statement you note that the Air Force is "committed to stable production of F-15's and F-16's to modernize and expand the tactical Air Force." (p.3.) Does this budget request purchase sufficient tactical aircraft for the Air Force to maintain its current force structure at the required level of combat readiness? If not, how many additional aircraft should we be buying each year to do so?

Answer. In line with our plan to reach 40 tactical fighter wings in fiscal year 1988 the fiscal year 1984 President's budget includes procurement of 168 aircraft in fiscal year 1984, 192 in fiscal year 1985, and 276 per year from fiscal year 1986 through fiscal year 1988. At this procurement level, we will maintain the tactical fighter forces at the required level of readiness. However, over the five year period, the average age of the fighter force will increase from 8.7 years to approximately 10.6 years.

CRUISE MISSILES

Senator **Jackson**. Mr. Secretary, what, it any, changes are being proposed in the air-launch cruise missile production program? What are the reasons for these changes?

Answer. We did not request further funding for ALCM-B in our fiscal year 1984 budget because we are constrained in the number of ALCM's we can deploy, and we would like these missiles to be as good as we can make them. With funding from previous appropriations, production of the ALCM-B will continue into 1986. This will enable us to make a smooth transition to an advanced cruise missile (ACM) should technology and cost permit.

Industry proposals for an ACM were received just a short time ago, and while we have not had the time necessary to examine them fully, the costs seem to be higher than we originally expected. Because of this cost factor, once our examination has been completed we may request reprograming funds in fiscal year 1984 to continue ALCM-B production for at least another year. On the other hand, if a decision is made to procure the ACM, cost and schedule information will be provided at that time.

MILITARY PAY RAISE

Senator JACKSON. General Gabriel, in you joint statement you comment that "the key to success in all these efforts is the men and women of the Air Force. Taking care of our people is a responsibility second to none." (p.l.) And when the decision to freeze military pay in fiscal year 1984 was announced, you were quoted in the press as saying that you would be willing to trade weapons for pay raises if such a choice has to be made.

Do you still feel this way? Should Congress make room in this year's Defense budget for a military pay raise by reducing other areas of the budget?

In your opinion, should any military pay raise adopted by Congress be targeted, or across-the-board?

ANSWER. When I said I would be willing to make adjustments in order to include a pay raise for fiscal year 1984, I did not have any specific programs in mind. Since the President's fiscal year 1984 budget request, which I support, does not include a pay raise for government workers (civilian and military), there is no reason to adjust our needed programs.

As I have testified, I support what we are doing now. I believe our people understand, and we will do our part in helping to reduce the budget deficit. If Congress directed us to accommodate a pay raise within fiscal year 1984 appropriations, we would of course do so while trying to minimize negative effects on essential weapons programs.

We believe military pay raises should be applied across-the-board. However, in recognition of the economic difficulties our Nation faces, Secretary Orr and I are on record as supporting some targeting if the Congress passes a fiscal year 1984 pay raise. The form of targeting we would support would be withholding a pay raise for E-1's and E-2's with an equal across-the-board raise for the remainder of the force.

MILITARY RETIREMENT

Senator JACKSON. General Gabriel, your statement emphasizes the importance of the military retirement system as a retention tool.

As you know, the 1984 fiscal year budget includes a proposal to reduce future cost-of-living adjustments for all Federal retirees, including military retirees, by one-half until age 62.

In your opinion, what effect would enactment of this proposal have on retention, particularly in the senior enlisted corps?

ANSWER. The proposal to make the 50 percent COLA cap permanent would have a significant, adverse impact on retention, particularly for mid-career NCO's. The far-reaching effects of this proposal must be viewed in terms of an individual's lifetime earnings. For example, a technical sergeant, retiring at 20 years of service (YOS), would experience a lifetime retirement pay loss of one-third or $93,000 (in 1983 dollars; assuming only 6 percent inflation rate). In effect, the 50 percent COLA cap reduces a technical sergeant's retired pay multiplier for 20 YOS from 50 percent to 33 percent of basic pay. Moreover, a technical sergeant's current monthly annuity of $649 would erode to $345 in purchasing power by age 62.

Recently, we asked our career-committed airmen their reaction to a cut in the multiplier for 20 YOS from 50 percent to 40 percent of basic pay. Well over one-third indicated they would separate in lieu of completing a career. Since we have no experience with changes as drastic as the proposed permanent 50 percent COLA cap, the exact impact on the senior enlisted force is not known, but it would undoubtedly be substantial. We are currently attempting to assess these impacts on our force.

TRANSFER OF MISSIONS TO THE RESERVES

Senator JACKSON. General Gabriel, has the Air Force given serious consideration to transferring missions and aircraft currently in the Active Force to the Reserve components?

ANSWER. The Air Force has assumed the lead in implementing the Secretary of Defense total force policy, and today maintains the finest Reserve Forces in the world. Since the start of this policy in 1973, we have programmatically integrated Active and Reserve Forces into many mission areas. Specifically, two-thirds of the air defense force is currently in the Air National Guard; our Reserve Forces are now actively involved in the tanker mission with 126 KC-135's; our Reserve and Guard programs provide 50 percent of intertheater airlift and 60 percent of intratheater airlift. Further, 54 percent of the total tactical reconnaissance and 34 percent of the total tactical fighter forces are in our Reserves.

The total force undergoes constant review. To insure we are putting our resources in the right place for the highest payoff in war-fighting capability, we weigh manpower, training, modernization, mobilization and cost factors in determining the mix of Active and Reserve Forces in each mission area.

To illustrate some of our current initiatives, we are bringing KC-10 aircraft into the Reserve Associate Program, and we also anticipate modernizing our air defense forces with F-15's and F-16's. Our Reserve Forces currently play a vital role in support missions such as air base defense, contingency hospitals, airlift control elements, engineering squadrons, and communications support elements, and they are projected for even greater participation.

The Air Force is proud of its response to the total force policy. Our success stems from the continuous and methodical planning and programing process. We can continue this success with your support for current Air Force initiatives and future programs.

TACTICAL FIGHTERS TO THE RESERVES

Senator JACKSON. General Gabriel, is there any reason, for example, why more of the tactical fighter and attack squadrons, or more of the fighter interceptor squadrons, could not be transferred from the Active Forces to the Reserve Components?

ANSWER. Presently, the U.S. Air Force, in support of our forward deployed strategy, maintains approximately one third of our combat units overseas. To effectively manage these forces, we must maintain an active strength at home to provide a rotational base for these units. The balance in our combat forces is split almost equally among forward deployed, CONUS based, and Reserve components. To transfer more of these tactical fighter squadrons to the Reserve components would upset the balance and require our active personnel to spend a disproportionate amount of the time in overseas units.

On the other hand, since the continental air defense fighter mission does not require forward basing, we have been able to place more responsibility for strategic defense in the Air Reserve forces. The Air National Guard now has 67 percent (10 to 15 squadrons) of our air defense force. This is the highest percentage of Reserve contribution to any flying mission area.

WIDEBODY COMMERCIAL AIRCRAFT

Senator JACKSON. The Congress authorized and appropriated funds for the purchase of three used widebody commercial aircraft. Where does this procurement stand? When will action be taken? What is your current thinking on the use and assignment of these aircraft?

ANSWER. The Air Force is organizing a program office to manage the procurement of these aircraft. We expect to complete formal program direction by the end of May 1983. We will then complete documentation for a competitive acquisition effort. The Military Airlift Command and the National Guard Bureau are now formulating operational and logistics support concepts.

CRAF

Senator JACKSON. What are your plans for the use of $144.3 million for the CRAF program in fiscal year 1984? When will a request for proposals be published?

ANSWER. The funds requested for the CRAF enhancement program will be used to open a modification line and finance our proposed modification of the first three aircraft in a retrofit program. A request for proposal will be issued in early fiscal year 1984.

MANPOWER REQUESTS

Senator JACKSON. Mr. Secretary, what are the Active, Reserve, and civilian manpower requests for fiscal year 1983 and fiscal year 1984, and what are the projected figures for those categories for fiscal years 1985-1988?

ANSWER. The programed end strengths are as follows:

[In thousands]

	Fiscal year					
	1983	1984	1985	1986	1987	1988
Active military	592.5	612.6	636.4	656.3	663.4	683.5
Civilian	216.2	219.6	222.3	223.4	223.3	223.1
Air National Guard	101.8	104.1	106.1	107.7	110.5	112.5
Air Force Reserves	66.6	69.9	74.0	77.1	80.0	82.4

Note: Civilian numbers exclude Air Reserve Forces military technicians.

Questions Submitted by Senator Sam Nunn

COOPER REPORT

Senator Nunn. Mr. Secretary, what is your view of the Cooper report on the medical personnel and management problems at Wilford Hall?

Answer. The Cooper report is a conscientious effort to shed additional light on the problems at Wilford Hall in the 1975–77 era. Cooper interviewed many of the persons that were earlier interrogated by the Inspector General.

In general, the Cooper report is more critical than the IG report. I believe the Inspector General was better able to view 1975–77 events in the light of information that commanders then knew or should have known. All management efforts appear different in the clarity of hindsight, a point which Cooper noted when he said "We also recognize the nature of retrospective review. Issues which now seem clear, might not have been as clear at the time of their occurrence."

Cooper states that the Air Force Inspector General made a "generally comprehensive and thorough investigation; but "the report appeared to tilt awkwardly to avoid any criticism of the command structure and particularly of General Myers' handling of the matter." I do not agree with the phrase "tilt awkwardly." The Inspector General is not obligated to recommend disciplinary action. This responsibility rests with the Secretary and Chief of Staff. I respect the integrity of the Inspector General and feel that his conclusion was an honest representation of his feeling and not an awkward tilting designed to protect an individual.

That the IG report was not a whitewash is borne out by the following brief quotations:

"Further, the Director of Hospital Services, the Executive Committee and the Credentials Committee all failed to take appropriate and sufficient actions." (AF/IG—Page 45).

"General Myers merely defused the situation by a series of management actions and eventually allowing Colonel Stanford to go to CVSA for a six-month fellowship." (AF/IG—Page 45).

"All available resources were not effectively employed to arrive at a solution. Delegation of authority and responsibility, traditional management and leadership tools, were not employed to their fullest extent." (AF/IG—Page 42).

These are criticisms of management and I, after consultation with the Chief of Staff, will take appropriate corrective measures.

My second disagreement with the Cooper report lies in Dr. Cooper's criticism of the Zajtchuk report. I feel that the Cooper report and the Zajtchuk report are entirely independent and should be viewed as unrelated but concurrent attempts to shed light upon a problem. The surgeons in the Zajtchuk report did not have an opportunity to comment upon the Cooper report, nor to offer criticism of the way it was constructed, and I feel it is unfortunate that Dr. Cooper casts some doubt upon the credibility of the Zajtchuk group.

Specifically, I note that Dr. Cooper feels that the Zajtchuk group made no differentiation between surgery in which Dr. Stanford was the primary surgeon as opposed to surgery when he was an assistant surgeon. It is interesting to note that in the Milwaukee case, Dr. Stanford was not the primary surgeon, and he did not even have primary responsibility for hooking up the machine which was wrongly affixed and which led to the distressing incapacity of the patient. Nevertheless, the court found Dr. Stanford to have primary liability and assessed to him a penalty far, far greater than that assessed to the surgeon in charge or to the person who had the main responsibility for the hookup of the machine.

Finally, I think the most important thing to be learned from the Zajtchuk report, the Inspector General's report, and the Cooper report is not to debate about whether one or the other was adequate or inadequate, nor to be concerned if they differed slightly, but to note that there were problems which existed at Wilford Hall; problems which should not have existed and which it is incumbent upon the Air Force to see are corrected so that the lives of future patients are protected.

CHANGES BECAUSE OF COOPER REPORT

Senator NUNN. Mr. Secretary, what changes and/or improvements are being made by the Air Force to insure this does not happen again?

ANSWER. Numerous actions have been taken to insure that high quality patient care continues to be provided and that concerns or allegations regarding a health provider's competence are promptly and appropriately resolved.

Formal quality assurance/risk management programs have been established Air Force-wide. A quality assurance office has also been established in the Office of the Surgeon General to assure centralized management at the highest level for these programs.

Explicit criteria have been identified and are being monitored to assure medical facility commanders can quickly identify and evaluate health care providers whose capabilities require evaluation. Further, procedures have been implemented to assure that the facility commander, major command surgeon and Surgeon General are informed of actions taken with regard to a practitioner whose competency has been questioned.

An automated data system now provides hospital commanders with detailed knowledge of quality assurance items, such as infection and mortality rates, for every health care provider in the organization.

The credentials review program has been markedly improved. A requirement now exists to forward the credentials file to the gaining organization when a practitioner either goes on temporary duty to another facility or when enrolled into a training program. Additionally, when Air Force physicians and dentists whose credentials have been rescinded separate from the Air Force a written report is submitted to the Federation of State Medical Boards.

The use of national consultants in the quality assurance program has been improved. Current regulations require these consultants to evaluate quality assurance items in their specialties when they visit Air Force medical facilities. These reports will be reviewed by the major commands as well as the Surgeon General and the chief of the quality assurance office.

A central office has been designated to manage all aspects of the accreditation of health facilities. All Air Force medical facilities are required to follow the standards of the Joint Commission on Accreditation of Hospitals.

These actions should insure that problem areas are promptly recognized and corrective action taken.

INSPECTOR GENERAL COMMENTS ON THE COOPER REPORT

Senator NUNN. Mr. Secretary, what is your view of the report by the Air Force Inspector General with the comments of the Cooper report? What steps are being taken to insure that the Inspector General maintains the traditonal independence?

ANSWER. As I stated in response to the question on the Cooper report, I feel the Inspector General presented facts as he saw them, without any "awkward tilt" to protect individuals. To have asked him to recommend a reprimand or to request any other changes in his report would have destroyed the independence of the Inspector General. If the Secretariat can take a draft report and ask an Inspector General to make it stronger, there is no reason that the next time a draft report is presented, the Secretary might not ask an Inspector General to make it weaker. I firmly believe the Inspector General is and should remain a thoroughly independent arm, and I make absolutely no attempt to sway the report to conform to any individual opinion.

Each month, I review many Inspector General reports on Air Force activities, including accident reports, drug investigations, allegations of fraud, nuclear security inspections and similar activities. It is my belief that the Inspector General continues to function as an independent and critical agency of the U.S. Air Force and therefore no new initiatives are now planned. I firmly believe that the Inspector General did not recommend a more severe condemnation of Dr. Myers' action, not because he was attempting to protect an individual, but because he was attempting to view facts as they existed 6 years ago. At that time, there were conflicting reports concerning the credibility of one of the outstanding thoracic surgeons in the United States, tensions among doctors who were being held in the military service well after other individuals were no longer being drafted, and a host of other pressures upon management. Today, we look back with clearer hindsight and find it easy to wonder why more prompt action were not taken. But recommendations for punishment must take into account what the responsible individual knew or could be presumed to have learned at that time, not what has later become clearer.

GENERAL GABRIEL'S COMMENT ON COOPER REPORT

Senator NUNN. General Gabriel, have you read the Cooper report, particularly the comments on the Inspector General's report? Do you have any concern that the Inspector General may have compromised his position and what is being done to insure this does not recur?

ANSWER. As I understand the situation from my review, the Cooper report cited the Air Force report as being an excellent, thorough and comprehensive document with excellent recommendations to correct the system weaknesses, but failed to fault the people involved in this particular incident which occurred over 5 years ago. My review of the Air Force report shows that the Inspector General did indeed criticize the Wilford Hall Medical Center Commander and command structure for lack of timely decisions and failure to totally resolve the questions raised by other doctors concerning Dr. Stanford's surgical abilities. This is pointed out in the general discussion and conclusions of the Inspector General report. However, after serious consideration of possible discriplinary or administrative actions against General Myers or others in the command structure, he decided after consultation with the Air Force Judge Advocate General against recommending such action for the following reasons:

No criminal activity could be identified. Parenthetically, even if there had been evidence of crime, which there was not, court-martial or article 15, UCMJ, action was barred by the statute of limitations.

The events occurred almost five years before the Air Force Inspector General investigation.

General Myers did take management actions, and judgment was based on regulations and practices then in existence and not 1982 standards.

There was no action which could undo or reverse any element of the situation, and taking nonpunitive measures would serve no corrective or rehabilitative purpose or further the efficiency of the command or unit. This is especially true here where the officials involved years ago left the jobs they were performing at the time and have been advanced in grade and position with highly successful performance.

In particular, General Myers had an outstanding record, both before and after the Dr. Stanford matter in a distinguished 30-year career.

For the reasons cited above, I am certain the Inspector General has not compromised his position. Moreover, the Air Force Inspector General report was approved by my predecessor and the Secretary of the Air Force. The prior Chief of Staff directed implementation of the recommendations in the Inspector General report in June 1982, and the new Surgeon General is aggressively pursuing those actions with many of them completed. My main concern and attention will be focused at insuring we correct all system weaknesses and continue to provide the finest health care possible to all the men and women of the U.S. Air Force and their families.

ARMY/AIR FORCE COOPERATION

Senator NUNN. General Gabriel, what is the status of Army-Air Force cooperative efforts related to the air land battle doctrine? What is the Air Force view in this area? What is the Air Force doing in the R&D and procurement cycle to implement the air land battle concept and the second echelon/deep strike doctrine supported by General Rogers?

ANSWER. We and the Army are making good progress in addressing the issues raised in the Army's air land battle doctrine. The two Services have agreed to write a memorandum of understanding (MOU) to enhance joint employment of the air land battle doctrine. The MOU will, in particular, be directed at increasing joint training and exercising as well as evaluating the effectiveness of the air land battle concepts.

The Air Force has several weapon programs in R&D and procurement which are directed toward prosecuting the air land battle. Weapons such as Maverick, combined effects munitions, and 30mm gun pods provide tactical aircraft with a significant capability to attack second echelon targets. We are developing a short range standoff attack weapon (SAW) which will allow attacking aircraft to standoff from terminal defenses. This weapon in combination with smart antiarmor submunitions such as Skeet (which we are also developing) will increase our capability to engage and defeat second echelon forces. We are working with the Army to develop a joint radar system (JSTARS) which will provide Air Force and Army commanders with improved information on second echelon movements in the battle area. We are also working to define the requirements for a joint missile (JTACMS) which will provide commanders with an extended range standoff vehicle.

LIST OF PROGRAMS

Senator NUNN. General Gabriel, please provide a list of those programs, especially conventional munitions, currently in R&D and procurement that support air land battle concepts. What are the new initiatives in R&D and procurement in the 5-year plan?

ANSWER. A large number of Air Force programs support the integrated war fighting approach underlying the air land battle concept. These programs include, among many others: the dual role (derivative) fighter, low altitude navigation targeting infrared system for night (LANTIRN), advanced communications, combat identification systems, the precision location strike system (PLSS), the joint surveillance and target attack radar system (Joint STARS), and several C ^{3} I programs.

In the area of conventional munitions, several programs have direct application in increasing our ability to conduct integrated air/land war fighting. These include:

IIR Maverick: IIR Maverick provides an effective antiarmor weapon that can be used at night or under conditions of limited visibility. It is currently in limited production.

Combined effects munition (CEM): CEM consists of 202 multiple effects (shaped charge, fragmentation, and incendiary) bomblets packaged in a tactical munitions dispenser. CEM will enter production during fiscal year 1983.

Gator: Gator consists of 94 (72 antiarmor/22 antipersonnel) mines packaged in a tactical munitions dispenser. Gator is in production.

GBU-15: GBU-15 is an electro-optically guided, limited standoff weapon providing high precision. A TV seeker version is in production and an IIR seeker version, based upon the IIR Maverick seeker, is currently in development test and evaluation.

30mm guns: The GAU-8 and the 30mm gun pod provide cost-effective capability against a variety of close air support and interdiction targets. Both are in production.

Low level laser guided bomb (LLLGB): LLLGB is an improved capability laser guided bomb providing a greatly expanded delivery envelope including delivery from extremely low altitude at ranges of approximately [deleted] LLLGB is currently completing initial operational test and evaluation.

Key conventional munitions programs in R&D include:

Wasp: Wasp consists of eight mini-missiles in a pod. The mini-missile employs a terminal seeker allowing standoff, launch and leave delivery for multiple kill capability against armor targets. Wasp is planned to enter full scale development in late fiscal year 1983.

Sensor fuzed weapon (SFW): The SFW is a 1,000 pound weapon consisting of 40 armor defeating submunitions (Skeet) packaged in a tactical munitions dispenser. The SFW program is planned to enter full scale development in fiscal year 1984.

Standoff attack weapon (SAW): The SAW is a 2,000 pound class weapon delivering approximately 1,000 pounds of payload to distances of 10 to 20 miles, a standoff distance which will keep low-altitude, delivery aircraft outside the range of terminal defenses. The SAW is a new start for fiscal year 1984.

Joint tactical missile system (JTACMS: The JTACMS is a joint program with Army as lead service to provide ground and air launched standoff missiles capable of employment against a variety of tactical targets. JTACMS will operate effectively with engagement systems such as PLSS and Joint STARS. Contract award for full scale development is planned during fiscal year 1984 based upon a joint service operational requirement (JSOR) currently in preparation.

GBU-15

Senator NUNN. General Gabriel, what is the value of the GBU-15 and what does this munition do in terms of improved aircraft survivability? What was the procurement quantity for fiscal year 1984 reduced from planned levels?

ANSWER. The GBU-15 is a precision guided conventional munition. This weapon allows us to deliver a 2,000 pound bomb with pin-point accuracy while reducing aircraft attrition through low altitude delivery at standoff ranges.

Another aircraft survivability feature is that it is not necessary to maintain line-of-sight to the target, only to the weapon. The weapon system controller has the capability to lock the weapon on before launch or at any time during the weapon's flight. This tactical flexibility combined with terminal accuracy makes this weapon very effective against high value targets.

Procurement in fiscal year 1984 was reduced because of fiscal contraints. The overall requirement for this weapon system has not changed.

GBU-15 CONVENTIONAL WEAPON

Senator NUNN. General Creech, what is the TAC view of the value of the GBU-15 conventional munition? What does this system mean in terms of aircraft platform survivability? Does TAC support the reductions in fiscal year 1984 from the previously planned levels. What other systems offer any near-term standoff capability?

General CREECH. The GBU-15 is very valuable in that it provides the Tactical Air Forces a precision guided weapon with standoff capability and a high degree of lethality. The IR version, currently in development, gives the TAF the capability to deliver weapons at night and during conditions of limited visibility. The standoff capability is enhanced by the fact that the controlling aircraft can remain outside the terminal threat area and a delivery aircraft can use terrain masking without exposing the aircraft to those enemy defenses. Additionally, the GBU-15 does not require a pop-up for lock-on before launch, thus target acquisition can be obtained with the weapon in flight.

Since the weapon can be launched at low altitude at a standoff range of approximately [deleted] the delivery aircraft can avoid radar and optical acquisition by enemy surface-to-air missiles and anti-aircraft artillery. Since the launch aircraft can avoid those defenses, the survivability afforded by delivery of the GBU-15 is several orders of magnitude greater than that obtained without precision guidance or standoff.

TAC would have preferred to maintain the fiscal year 1984 programed level of funding; however, this program was one of several which had to be adjusted to accomodate directed reductions in the Air Force budget. The President's Budget allows for production increases in fiscal year 1985, fiscal year 1986, and fiscal year 1987 to recoup the reduction in fiscal year 1984. Total planned procurement levels will be met under the current out-year funding profile.

LLLGBS provides standoff capability but of a slightly different nature since the delivery aircraft must get within and stay within line-of-sight of the target, albeit at a standoff range (so as to laser illuminate the target). Thus, it is not viewed as a competitor to the GBU-15. Instead, they are complementary.

CRAF ENHANCEMENT

Senator NUNN. What are the fiscal year 1984 and 5-year plans for the CRAF program?

General ALLEN. The Nation's need for additional cargo airlift capability is well documented. The objective of a CRAF enhancement program is to obtain additional oversize cargo airlift capability for DOD emergency use. The program would modify civil wide-body aircraft to provide additional cargo capacity of 3 to 4 million ton miles per day. The actual capacity depends on the final number, type, and cost of aircraft offered by participating carriers. After the last request for proposal was allowed to expire in January 1982, MAC was given a charter to review the program with members of the civil aviation industry. The review sought a program that would be acceptable to the carrier, DOD, and the Congress. Following that series of visits, several different concepts (involving leasing) were developed and have been undergoing extensive analysis. We are comparing these new options to the traditional enhancement program with the view to select the one most cost effective, yet realistically acceptable to the airline industry. We are requesting funds in fiscal year 1984 to modify 3 aircraft. The 1984 President's Budget requests the following funds: $144.3 million (fiscal year 1984), $179.4 million (fiscal year 1985), $219.2 million (fiscal year 1986), $244.3 million (fiscal year 1987), and $253.8 million (fiscal year 1988).

Our commitment to CRAF enhancement is strong, and it remains the least expensive way of increasing our airlift capability.

UNIT COST AMENDMENT

Senator NUNN. Secretary Orr, has the unit cost amendment passed by Congress in 1982 and refined in 1983 provided you with any assistance in your statutory responsibility for weapons systems management? What initiatives have you taken as the Service Secretary to manage unwarranted cost growth? Do you have any recommended changes to this amendment?

Answer. The unit cost amendment has resulted in additional senior level attention being given to early identification of potential cost problems, allowing for earlier management initiatives to be implemented for stemming cost growth.

To minimize and better manage cost growth, I established a Cost Control Steering Committee within the Secretariat. This Committee has been instrumental in developing recommendations for improving our cost management. These include: (1) establishing and maintaining firm program baselines; (2) improving weapon system acquisition cost management reporting to senior Air Staff and Secretariat executives; (3) directing more resources to cost research; and (4) implementing a prioritized cost estimating schedule.

On the acquisition side, several actions have been taken to address our concerns over cost growth: (1) increased emphasis on the use of "should cost" analysis, value engineering, work measurement and cost schedule control system criteria; (2) establishing an Ad Hoc Task Force to review our acquisition policies and their implementation and commence action to preclude all opportunity for unnecessary cost growth; (3) increased emphasis on the review of overhead, compensation, and material cost for early detection of potential cost growth areas and immediate corrective action; (4) continued personal discussions with industry executives to raise their level of concern about cost overruns; (5) multi-year procurement; and (6) establishment of competition advocates in each major command to insure aggressive implementation of competitive buying.

Despite the success of the unit cost amendment, there are several changes that would be beneficial. I recommend the following:

(1) At present, any change in program schedule, cost or performance requires submission of a quarterly Selected Acquisition Report (SAR). The language should be revised to require quarterly SAR's only when minimum thresholds are exceeded, such as 5 percent for cost or performance or six months for schedule. This action would reduce the quarterly reporting burden.

(2) The 30-day preliminary and 45-day final submission times should be restored for quarterly SARs.

(3) Program cancellations, quantity increases in the program out-years, and congressional reductions should not be a basis for reporting breaches at any levels.

(4) The December Unit Cost Reports should be tied to the submission date of the President's Budget consistent with the schedule for the SARs.

MORE REALISTIC INITIAL COST-ESTIMATES

Senator **Nunn**. Mr. Secretary, what can be done to insure more realistic initial cost-estimates for weapon systems? Do you have any recommendations in this area and have you undertaken any initiatives to improve the cost-estimating process?

Answer. An analysis of the latest selected acquisition reports for Air Force systems shows that estimating changes account for only 7 percent of the total cost changes to the original estimates. Nevertheless, we want to improve that percentage.

We are now in our second year of implementing the "budget to most likely cost" initiative, and we are working closely with the Office of the Secretary of Defense staff on several other cost related initiatives. The Air Force Cost Analysis Improvement Group reviews cost estimates at major program milestones and directs other ongoing efforts to improve cost estimating. The Commander of Air Force Systems Command has established "Project Cost" to pull together all ongoing cost control measures.

Last year, my staff on the Secretariat worked closely with the Air Staff to establish several initiatives to improve cost estimating and address cost control. These include the following:

Multiyear procurement.

Increasing use of competitive bidding.

Increasing use of "should cost" studies.

Commencement of plant studies of vendors to ascertain whether their estimates of time and personnel are valid.

Establishing and maintaining firm program baselines.

Improving weapon system acquisition cost management reporting.

Devoting more resources to cost research.

Increasing the number and quality of cost estimators.

As we continue this program, we plan to focus our effort on those initiatives which provide the greatest benefit and to concentrate on fully implementing these initiatives throughout the Air Force.

AIR FORCE-NAVY AGREEMENT

Senator **Nunn**. Mr. Secretary, what are the elements of the Air Force-Navy agreement on cooperative efforts?

Answer. The October 25, 1982 memorandum of agreement accelerated Air Force and Navy joint efforts to enhance our combined effectiveness in maritime operations. We focused on joint training and interoperability and have agreed to the following specific initiatives:

Increase integration of Naval and Air Force forces in tactical training exercises, including JCS-sponsored exercises.

Increase cooperation in interoperable command, control and communications equipment and procedures.

Increase inter-service use of existing and programed tactical training schools.

Increase cooperation in improving tactical weapons effectiveness.

Increase inter-service use of existing tactical weapons ranges and facilities for training and exercising.

Encourage joint efforts to develop, operate and use a multi-service war-at-sea range located in the vicinity of South Florida.

GBU-15/SUU-54 INTEGRATION

Senator **Nunn**. General Creech, what is the availability of SUU-54 cannisters and could these cannisters be loaded with submunitions and provided with some precision guidance system such as the GBU-15? Would this provide any near-term assistance in the conventional munitions improvements area?

General **Creech**. There are 1,930 SUU-54 dispensers in the inventory; 988 are empty and 942 are loaded with CBU submunitions. The Air Force is exploring the feasibility of using these dispensers in some standoff fashion that would utilize a special guidance scheme like that used in the GBU-15. The data is too preliminary to have reached any conclusions.

GBU-15 TV/IR SPLIT

Senator **Nunn**. General Creech, what is the operational effectiveness of the GBU-15 and what is the potential of this system? What is TAC's view of the split between TV guided systems and IR systems? Would it be better to stick to the originally planned levels in this area?

General **Creech**. The GBU-15 TV weapon has been demonstrated to be very effective for high value point targets. We are pleased with the demonstrated accuracy of the system, [deleted] and the increased survivability it provides our aircrews. In general, the system meets our requirements to deliver consistently a 2,000 pound unitary warhead on target, while reducing the vulnerability of our aircraft. This capability reduces the sorties required to destroy a target and thereby increases the effectiveness of our forces.

Through the development of the IR seeker, the system has the potential to expand our capability into the night and limited visibility arena. A standoff capability provides the TAF with the ability to operate with few environmental restrictions and denies enemy sanctuary under these conditions.

While the TV weapon has the advantage of greater resolution during daylight/good visibility conditions, the IR version complements the TV by expanding utility into the night and limited visibility arena. Therefore, the acquisition plan is to continue procurement of GBU-15 TV weapons until the IR version become available. At that point IR weapons will be procured, leading to a total buy of [deleted]. The resulting ratio of 37 percent TV and 63 percent IR provides a good mix of weapons for use under varying conditions against varying targets. The IR weapon is considerably more versatile than the EO; consequently, we need more of those.

GBU-15/LOW LEVEL LASER GUIDED BOMB (LLLGB)

Senator **Nunn**. General Creech, what is the ratio of GBU-15 purchases to those planned for the low level laser guided bomb (LLLGB)? Does TAC think this is the appropriate mix? What analysis has been done on the LLLGB in terms of operational effectiveness? What actual test data is available?

General **Creech**. The ratio of GBU-15's to the low level laser guided bomb (LLLGB) is 1 to 42. This ratio is based on the planned buy of [deleted] GBU-15's and the [deleted] LLLGBs as stated in the nonnuclear consummables annual analysis.

To determine the number of GBU-15's required, the mission oriented approach was used. This approach identifies the critical high value, heavily defended targets that warrant such an expensive weapon. The smaller number of GBU-15's required is based on the number of targets falling in that category.

The number of LLLGB's requested is based on the remainder of the target base requiring standoff/precision guided weapons.

A comparative analysis of the GBU-15 and LLLGB was completed on May 29, 1981. The study examined the employment of the 2,000 pound version of both the GBU-15 and the LLLGB against a limited target set based on a high threat Central European winter scenario. The major observations were: [deleted].

The study supports a [deleted].

DT&E tests data for LLLGB is available. This test was highly successful with 10 direct hits out of 11 weapons released. IOT&E has not been completed. The results to date reflect the normal difficulties expected in fielding a new system.

MARITIME STRATEGY

Senator **Nunn**. General Gabriel, I asked General Allen last year about the contributions that the Air Force could make in the area of maritime strategy and we had a dialog on that subject which is public record. He and I both agreed generally that the Air Force would have to be involved more vitally than ever before. What are your views on this subject and what initiatives do you plan in this area?

Answer. Recognizing that air power is a key element of maritime operations, Admiral Watkins and I have been working closely on ways we can help one another. As you know, in October 1982 the Navy and the Air Force signed a memorandum of agreement that will accelerate joint efforts to increase our effectiveness in maritime operations. We recognize, for example, that maritime strength to keep sea lines of communications (SLOC's) open is an indispensable component of the U.S. military posture. The broadening Soviet military threat to SLOC's exceeds the capability of the combined assets of the Navy and Marine Corps to handle that threat. To obtain the best deterrent value and fighting capability in wartime, a continued effort is needed to coordinate Air Force and Navy forces.

Our evaluation of joint exercises and the current Soviet threat indicates that anti-air warfare/counter-air operations is the mission area in which Air Force capabilities can provide the most immediate gains to maritime operations. The Air Force will also improve its anti-ship capability in support of the antisuface ship warfare (ASUW) mission.

We will focus on realistic joint training and exercise activity to insure that we have good capability within our present operations. For example, we have significantly increased Air Force participation in a future naval exercise to include AWAC's, F-15's, KC-10's, and KC-135's.

MOBILITY OBJECTIVES/CAPABILITY

Senator **Nunn**. General Gabriel, what is the current capability of the U.S. Air Force to meet the strategy goals as outlined on page 209 of the Secretary of Defense fiscal year 1984 Posture Statement for "concurrent reinforcement of Europe, deployments to Southwest Asia and the Pacific and support for other areas. . . Given the Soviet capability to launch simultaneous attacks in SWA, NATO and the Pacific, our long range goal is to be capable of defending all theaters simultaneously." Will the Air Force be capable of meeting your part of that goal at the end of this 5-year plan? If not, when? Will this require additional resources than currently planned in the budget? How realistic is this goal?

Answer. The Air Force part of the long term goals, which cover a period of at least 15 years, includes the ability to support a global conflict. Currently, we are unable to meet these goals, nor do we expect to be able to meet them by the end of this 5-year plan. However, our prepositioning and airlift improvement efforts (KC-10/C-5B/CRAF enhancement) are underway, and if funding continues at planned levels, we will have made significant progress by the end of this 5-year program. These actions alone won't be enough. Consequently, the C-17 is essential if we are to increase and modernize our inter- and intra-theater airlift forces to achieve a capability for simultaneous deployment. This goal is based upon the threat and is realistic.

Questions Submitted by Senator Carl Levin

MAJOR WEAPON SYSTEMS

Senator Levin. Mr. Secretary, for how many major weapon systems have you performed an independent cost analysis, as required by former Deputy Secretary of Defense Carlucci? Which systems were they? In what years were they performed? In each case, did you use the lower reported estimate for forming your budget request? In those cases, what justification was given for choosing the lower estimate? Please provide both cost estimates for those systems for which the lower estimate was chosen.

For which major systems have such independent cost estimates not been performed, and why not?

Answer. The Air Force completed four independent cost analyses (ICAs) in 1982 as required by former Deputy Secretary Carlucci's budget to most likely cost initiative. These ICA's were performed on the F-15, F-16, advanced medium range air-to-air missile (AMRAAM), and the NAVSTAR global positioning system (GPS) programs. The independent estimate was accepted as the basis for formulating the fiscal year 1984 budget request for the F-15 and F-16. The AMRAAM and NAVSTAR GPS program office estimates were higher than the ICA estimates and, in each case, accepted by the Air Staff. The initiative is being expanded in 1983 to cover 10 Air Force systems.

Not all major systems were covered in 1982 or will be covered in 1983 because of limited management resources. However, coupled with other independent estimates supporting AFSARC/DSARC and other major program reviews, estimates on these 10 systems should assist in providing a better picture of costs than previously available.

ADVANCED TECHNOLOGY BOMBER

Senator Levin. Mr. Secretary, will the advanced technology bomber have greater penetrability than the B-1B?

Answer. Yes, but you should keep in mind that there is no magic moment when a specific type of bomber cannot "penetrate." Air defense effectiveness varies depending upon the importance of the target and the timing of the offensive attack. Therefore, penetration of such defenses cannot be viewed as simply the ability to break through a wall or barrier at a given point in time.

The probability of an air defense network being effective over a range of defended targets gradually increases as these defenses are improved, but these improvements can be offset with new equipment and tactics in the attacking force. I am confident that the low radar cross section of the B-1B (which is less than one one-hundredth that of the B-52), and its state-of-the-art electronics, will allow it to penetrate to its assigned targets well into the 1990's. The improvements that the ATB will offer promise to allow similar effectiveness well into the next century.

PROJECTED ALERT RATE

Senator Levin. General Gabriel, what is the projected alert rate for cruise missile-carrying B-52's in the period 1988-1992? What would it cost (and in what cost categories) to increase the alert rate by an additional 10 percent of the force? By 20 percent? By 30 percent?

Answer. The projected alert rate for the ALCM configured B-52 force is expected to remain [deleted] percent. The answer to the second part of your question requires a very detailed analysis; however, these few explanatory comments should provide a feel for the magnitude of those costs. Current calculations address only the 10- and 20-percent increases. We do not have figures for a 30-percent increase available at this time.

There are two cases involving increased bomber alert which I want to address: first, a temporary increase in alert posture driven by military necessity in a crisis situation: second, a permanent increase in bomber alert posture.

As for the temporary case, we are prepared to increase bomber alert rates in selected increments all the way to 100 percent. The period of time that we could sustain such a posture varies with the actual percentage of the force committed to alert. For example, our analysis shows that we should be able to sustain a 50 percent alert rate for up to [deleted] days, 70 percent up to [deleted] days and 100 percent up to [deleted] days. The shorter periods of time associated with increases in the alert rates are attributable to the progressively faster erosion of aircrew proficiency and overall combat readiness. This results from a decreased capability to "cycle" aircrews through normal training and to perform routine maintenance on aircraft as more and more of our assets are on alert status. This "real world" crisis increase should not result in increased dollar costs owing to its temporary nature.

On the other hand, establishing increased bomber alert postures as the day-to-day norm would incur large increases in cost. Significantly more aircrews, flying hours, maintenance support, facilities, logistics, and air refueling requirements would flow from any alert increase above today's level.

The following costs are an aggregate estimate of fiscal year 1984-fiscal year 1989 direct operating and support costs expressed in millions of constant fiscal year 1982 dollars associated with increasing bomber alert rates from the current level to the indicated percentage. These costs do not include military construction to provide expanded housing, nor maintenance and general base support facilities to accommodate the larger base populations needed. Similarly, they do not include funds needed to expand the training base and to provide more crewmembers and qualified maintenance personnel.

[Millions of 1982 fiscal year dollars]

Approp.	[Deleted]	[Deleted]
3010	66.9	151.9
3400	1,592.7	3,151.4
3500	713.0	1,475.4
Total	2,372.6	4,778.7

AIR DEFENSE THREAT TO GLCM

Senator **Levin**. General Gabriel, what is the difference between the air defense threat to GLCM in the NATO-Warsaw Pact scenario and to ALCM-B in a penetrationof the Soviet Union?

Answer. From the standpoint of air defense interceptors, the primary difference between the two theaters of operation would be basing of the [deleted]. Although this interceptor is credited with having some limited capability against [deleted] it [deleted]. Consequently, [deleted]. The attack would be met primarily by the [deleted] each having limited, if any, capabilities to engage very low-altitude cruise missiles.

Surface-to-air missile (SAM) system capabilities also vary between the Warsaw Pact forward area and the Soviet Union. Within the Soviet Union, the SA-10 SAM system is currently being deployed. There are presently more than [deleted] operational sites with another [deleted] or so under construction. the SA-10 is judged to have some capability against the ALCM-B dependent upon local terrain features. No equivalent SAM system exists in the Warsaw Pact today. GLCM would face Warsaw Pact systems such as the SA-6 and SA-8, or possibly the SA-3, and they represent a [deleted] threat.

From a tracking and intercept standpoint, neither the Warsaw Pact nor the Soviet Union has the ability to [deleted] on either the ALCM-B or GLCM. This deficiency further exacerbates the problem of engaging these missiles with aircraft or SAMs.

For the future, the threat to the ALCM-B and GLCM will increase with the operational deployment of the [deleted] aircraft and the [deleted] systems toward the middle of this decade. The threat to GLCM could also grow as [deleted] are deployed to the forward area later in the 1980s. We still expect the tracking and intercept problem to be significant though, seriously degrading the usefulness of the new weapons that will be deployed and insuring the continued penetrability of both ALCM and GLCM.

RETALITORY ATTACK

Senator **Levin**. General Gabriel, in a retaliatory attack by the United States following a Soviet first strike, what percentage of Soviet air defenses do you estimate would remain to constitute a subsequent threat to cruise missiles, B-1, and the ATB?

Answer. Based on an Air Force study conducted on an exchange in the 1992-93 timeframe, the estimates of Soviet air defenses remaining that would constitute a subsequent threat to cruise missiles and bombers were:

Surface-to-air missiles—[deleted] (depending on type).

Advanced fighters—[deleted].

Other fighters—[deleted].

Ground control intercept radars—[deleted].

Despite [deleted] our analyses show that from an alert posture, route planning, synergistic attributes, and inherent capabilities contribute to the survival of a vast majority of our strategic penetrators and ALCM's.

UNITED STATES AND ISRAEL

Senator **Levin**. General Gabriel, did the Air Force recommend approval of the memorandum of understanding between the United States and Israel concerning the sharing of military information gained by Israel during the Lebanon war, which was sent to the Secretary of Defense late last year?

Answer. The memorandum of understanding was never formally released to the Air Force for review or comment.

SHORTAGE OF CRITICAL SKILLS

Senator **Levin**. Mr. Secretary, in what categories does the Air Force now have a shortage of critical skills? What are the levels of those shortages? What is the projected impact of a fiscal year 1984 pay freeze on these shortages?

Answer. We have critical skill shortages in both the officer and enlisted forces. At the end of the fiscal year 1982, the Air Force was short 925 pilots, 525 navigators, 850 engineers, 200 physician specialists, and 7,780 NCO's in 67 chronic, criticla, combat-related skills.

The effects of a fiscal year 1984 pay freeze will depend a great deal on economic recovery (for example, unemployment rate and airline hiring), level of the fiscal year 1985 pay raise, and compounding effects of other changes to the compensation system (for example, 50 percent COLA cap). With substantially lower inflation, a pay freeze would not have the effect it would otherwise have in a time of very high inflation. However, without a substantial catch-up raise in fiscal year 1985, pay comparability would be at an all time low for the All Volunteer Force. In that case, officer continuation rates and reenlistment rates would drop substantially as the economy recovers, aggravating critical skill shortages.

READINESS

Senator **Levin**. General Gabriel, despite the great increases in funding for readiness during the past 3 years (spare parts and replenishment spares in particular) the Air Force has only now discovered that it is almost $1 billion short in supplies to support peacetime operating levels in fiscal year 1984. Vague reasons about previously unknown requirements are given in the executive summary of the force readiness report to justify this shortage. This is terribly poor planning and budgeting, at the very least. How can you justify your budget request when you make such a mistake?

Answer. I agree that we did not do as good a job as we might have in forecasting our spares requirements in the past. But we discovered the problem ourselves—to a large extent because of our recent emphasis on readiness. After some tough analysis, we now know why it happened, and we're working hard to improve the whole process. Although it will take some time to resolve the shortfall, we are confident that with congressional support we can fix it.

We were underfunded for so many years that we were not aware of the full extent of the deficiencies in the estimating system. In August 1982, the Air Force Logistics Command discovered an $874 million growth in fiscal year 1982 requirements. The growth was caused by greater than forecast break rates, longer leadtimes, new stock levels, new items, increased unit costs and aircraft engine improvement programs. During September 1982, an Air Force team reviewed these requirements, and found them valid and the result of antiquated forecasting techniques. Consequently, a new aircraft replenishment spares forecasting model was developed and used for the fiscal year 1984 budget. This model showed that our peacetime operating stocks (POS) were underfunded by $701 million. This improved forecasting technique, adopted by the Air Force, will more accurately reflect future spares requirements.

An independent study group has also validated the shortfall in aircraft replenishment spares and has made other budget and programing recommendations. The Air Force is currently implementing the recommendations of this independent study group.

MISSION CAPABLE RATES

Senator **Levin**. General Gabriel, these same unknown or unforeseen requirements are blamed for the fact that mission capable rates for most Air Force aircraft have not improved. Tactical fighter/attack and bomber rates actually decline in fiscal year 1984 from past levels, again despite all the money Congress has provided in the past. This too is inexcusable. How can you justify it?

Answer. Projections for mission capable rates are based initially on spares funding, which we forecast to be underfunded, and are then modified by professional judgment to include the effects of many other factors that affect readiness, that is, personnel availability, retention of critically skilled personnel, reliability and maintainability modifications, depot level maintenance funding for engines, components and airframe repair, and overhaul facilities, etc.

The cumulative effect of these and other factors lead us to forecast that the aggregate bomber rate will decline. The fighter/attack mission capable rates, however, are projected to remain stable through fiscal year 1988.

Questions Submitted by Senator Edward M. Kennedy

STEALTH BOMBER

Senator **Kennedy**. According to the Air Force's timetable and assessment of the threat posed by Soviet air defense, when should the new Stealth bomber be ready to deploy?

Answer. Soviet air defenses have [deleted] against medium and high altitude aircraft, [deleted]. This situation will start to change [deleted] when the Soviet air defense system will be [deleted]. During this time they will begin to deploy [deleted]. Penetration of these [deleted] air defenses by currently deployed bombers will [deleted] Soviet air defenses for at least the next 10 years will [deleted].

As we proceed into the 1990's, if Soviet deployments continue as projected, their new air defense systems [deleted]. The deployment of the advanced technology bomber (ATB) in the early 1990's will help offset [deleted] air defense systems. A combined force of B-1B's, cruise missiles, and ATB's will place maximum stress on these Soviet air defenses, insuring that our bomber force remains effective well beyond the turn of the century.

START PROPOSAL

Senator **Kennedy**. If phase one of the START proposal were adopted, would it result in a net reduction in the total numbers of strategic nuclear weapons from what we have today, including the strategic bombers and cruise missiles the U.S. and the Soviets plan to build?

Answer. Phase I of the U.S. START proposal is directed toward substantial reductions in ballistic missiles (ICBM and SLBM) and ballistic missile warheads. Promulgation of a Phase I agreement would result in a net reduction in ballistic weapons from today's level of approximately 7,200 for the U.S. and 7,500 for the U.S.S.R. to an equal level of 5,000 each. This would be a 30-percent reduction for the United States and 33-percent for the U.S.S.R.

Phase I of the U.S. START proposal will also seek an equal limit on heavy bombers. The level we have proposed is much below the level of about 550 heavy bombers for which the United States is accountable under the SALT II Treaty.

AIRLIFT CAPACITY

Senator **Kennedy**. For how many divisions do we need airlift capacity?

Answer. In general, the answer is scenario dependent. Specifically, however, we are tasked by the defense guidance (DG) to reinforce U.S. forces positioned in Europe and committed to NATO with [deleted]. Since sealift would not yet be effective, these forces must be moved by air or prepositioned. Similarly, for Southwest Asia, the DG requires [deleted]. Beyond that time, sealift is presumed effective.

Chairman **Tower**. The committee is adjourned.

Secretary **Orr**. Mr. Chairman, may I thank you and the members of the committee on behalf of all of us for the courtesies you have extended to us.

[Whereupon, at 12:15 p.m., the committee adjourned, subject to the call of the Chair.]

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 1984

WEDNESDAY, MARCH 2, 1983

U.S. SENATE,
COMMITTEE ON ARMED SERVICES,
Washington, D.C.

NAVY/MARINE CORPS PROGRAMS

The committee met in open session, pursuant to notice, at 10 a.m., in room 6226, Dirksen Senate Office Building, Senator John Tower (chairman) presiding.

Members present: Senators Tower, Goldwater, Warner, Humphrey, Cohen, Quayle, East, Wilson, Stennis, Nunn, Exon, Levin, Kennedy, and Bingaman.

Staff present: James F. McGovern, staff director and chief counsel; James G. Roche, minority staff director; Alan R. Yuspeh, general counsel; Paul C. Besozzi, minority counsel; Brenda K. Hudson, assistant chief clerk; Willis D. Smith, deputy staff director and chief scientist for the minority; Louis W. Arny III, Michael B. Donley, Robert S. Dotson, Richard D. Finn, George K. Johnson, Jr., James R. Locher III, David S. Lyles, Patrick L. Renehan, Carl M. Smith, James C. Smith, and Joe Mayer, professional staff members; Jacquie S. O'Grady, staff assistant; Gerald D. Strickler, printing and documents clerk; Drew A. Harker, Mark B. Robinson, and Judith A. Freedman, research assistants.

Also present: Dennis P. Sharon, assistant to Senator Goldwater; John Campbell, assistant to Senator Warner; Ron Kelly, assistant to Senator Humphrey; Jim Dykstra, assistant to Senator Cohen; Jon Etherton, assistant to Senator Jepsen; Hank Steenstra, assistant to Senator Quayle; John Roddy, assistant to Senator East; Cindy Taylor, assistant to Senator Levin; Joe Kruzal, assistant to Senator Kennedy; Mary Shields, assistant to Senator Stennis; Arnold Punaro, assistant to Senator Nunn; Frank Sullivan, assistant to Senator Stennis; Bill Lind, assistant to Senator Hart; Greg Pallas, assistant to Senator Exon; Peter Lennon, assistant to Senator Levin, Matthew Murray, assistant to Senator Kennedy, Kathleen Callahan and Ed McGaffigan, assistants to Senator Bingaman.

OPENING STATEMENT BY SENATOR JOHN TOWER, CHAIRMAN

Chairman TOWER. The committee will come to order.

The committee meets this morning to receive testimony on the fiscal year 1984 budget request for the Navy and Marine Corps.

We are pleased to have with us John Lehman, Secretary of the Navy. Secretary Lehman is joined by the service chiefs, Adm. James Watkins, Chief of Naval Operations, and Gen. Robert Barrow, Commandant of the Marine Corps.

I would note that General Barrow will soon be retiring from the Marine Corps, after a brilliant career of some 40 years. General, we all recognize your contribution to the Marines, and we congratulation you on your achievements.

In addition, we are fortunate to have before us a fleet operational commander from the Navy—Adm. Sylvester Foley. Admiral Foley is the Commander of the Pacific Fleet. This is the first year in which an operational commander from the fleet has been asked to appear along with the Secretary and service chiefs. We hope that Admiral Foley's presence will help Members to get information about the operations of the Navy at the fleet level, and to understand the effects on Navy operations which any adjustment to the President's budget would cause.

It has been our practice for each of these posture hearings to invite members of the Senate Budget Committee to fully participate, that invitation was extended for this hearing as well, and I hope that some members will be able to attend. I do see Senator Metzenbaum here. I hope he will be joined by others of his colleagues on the Budget Committee.

The Navy and Marine Corps, considered as a unit, present strategic issues with regard to virtually every defense mission. The Navy operates in all modes at sea, and recent years have seen significant continuing advances in carrier-based aviation, submarine operations and surface warfare.

As the Navy builds to 15 carrier battle groups, which are necessary to permit it to meet its myriad force projection and sea control responsibilities, there are also major shifts in the composition of the carrier air wings underway.

We continue to build and deploy the Trident ballistic missile submarine and the *Los Angeles* class attack submarine, and to refine our antisubmarine warfare capabilities through our procurement of the Lamps III helicopter, improved sonars, towed arrays, and other equipment.

The surface Navy is substantially modernizing, with the introduction of the first Aegis cruiser into the fleet and continued design on a new generation of guided missile destroyer, the DDG-51.

All of these developments insure that we will have a Navy into the 21st century which will be survivable at sea and capable of performing all of its missions. When we add the amphibious and ground combat capability of the Marines to that of the Navy's sea warfare missions, we see that the Navy and Marine Corps together are an integrated, total fighting force.

Our Marines have historically been the finest and best trained amphibious units in the world. The Marines are in the midst of a period of modernization which assures that they will continue to be the first to fight in the future.

The Marines have proposed substantial improvements in Marine aviation, including procurement of the AV-8B Harrier and exciting developments in the JVX program.

In addition, the Navy is procuring new amphibious ships, including the LHD-1, which will act as launching platforms for helicopters and VSTOL aircraft to assist the Marines in their amphibious assault.

The concept of Marine pre-positioning of equipment is also a major advance toward insuring that the Marine Corps can quickly deploy to areas of the world where they are needed.

Mr. Secretary, we welcome you and the service leadership here today. We will be very much interested in your testimony.

Senator Jackson is not here yet. I would defer to Senator Kennedy if he would like to make any opening remarks for the Democratic side.

Senator KENNEDY. No opening statement, Mr. Chairman. I look forward to hearing our witnesses.

Being a new member and not knowing General Barrow but having known his reputation, I join the chairman in expressing great admiration for his service to our country and welcome him back to this committee.

Chairman TOWER. Mr. Secretary, you may proceed in any manner you see fit. Of course, it is customary for our witnesses to submit fairly comprehensive written statements for the record and summarizing those statements for the committee which is the recommended procedure.

You may proceed, however, any way you see fit. Any matter you want to submit for the record will be included in the record.

It is my understanding that we will hear from you and then from Admiral Watkins and then from General Barrow. Admiral Foley does not have a prepared statement, but will be available to answer questions that impact on the fleet.

So, Mr. Secretary, if you will proceed.

STATEMENT OF HON. JOHN F. LEHMAN, JR., SECRETARY OF THE NAVY

Secretary LEHMAN. Thank you, Mr. Chairman.

I shall be very brief, having submitted my statement for the record.

It is a real pleasure to be back for the third time. It is really a midterm report that we present to you today. The first time we appeared 2 years ago we set before the committee a very major, ambitious change of direction for your naval forces and a great deal has taken place since then.

NAVAL RECOVERY BUDGET

We are really here presenting to you the fourth Reagan naval recovery budget, counting the 1981 supplemental. The results are quite substantial in the main elements of that change of direction and I would like to just briefly touch on them.

First, as you know, we had a major change in overall maritime strategy; the Chief of Naval Operations dwells on that strategy at some length in his posture statement. It is a good sound strategy to achieve the Nation's objectives in defense.

Our highest priority has been and remains personnel. The news here, as this committee is very familiar with, is astoundingly good, in fact, the best 2 years of peacetime personnel improvement in 207 years of Navy-Marine Corps history.

In readiness, a major problem 2 years ago, where we had ships that had difficulty deploying because of problems in manning, in training, in parts and equipment, and in overall material readiness, we have experienced a tremendous improvement.

Though we have increased the size of the fleet substantially from some 460 ships 2 years ago to an active force of 514 ships today, those ships have an average 8-percent higher mission capability than the smaller fleet of 2 years ago. The program we put before you in the 1984 budget continues that improvement.

In aircraft squadron readiness the improvement is even more dramatic. In those 2 years readiness of the Navy squadrons has improved 16 percent in mission capability. So, the news on readiness is excellent.

In sustainability, one of the most important areas of real requirements, we are showing a steady improvement. We are improving the sustainability of our force measured in days on all accounts through the 5-year plan.

In ships we have managed to stay on the firm course toward a 600-ship Navy. We have more ships under contract today than at any time since the Korean war. We have 110 ships under contract. We have 15-carrier battle groups appropriated in the program and we will achieve 14-carrier battle groups in 1986.

With the delivery of the *Theordore Roosevelt* we will reach 15-carrier battle groups in 1989 and with the delivery of the first of two aircraft carriers funded last year we will sustain that 15-carrier level throughout the end of the century. There's no need for additional carrier procurement through the rest of this decade.

As far as aircraft are concerned, after 8 years of unilateral disarmament, where we were unable to procure as many aircraft as we lost through peacetime attrition, we have reversed that trend in 1981 and have begun to get well.

We have, Mr. Chairman, more than 300 additional aircraft in inventory today than we had 2 years ago. We initiated a steady improvement that will continue within the balanced procurement program in the 5-year plan including procurement of the F/A-18. As I mentioned earlier, the readiness of these aircraft is much higher today than it was 2 years ago.

Thanks to the initiatives of this committee regarding personnel, particularly AOCP, we realized the 2 safest years in the history of naval aviation. We saved about 20 lives in the past year and about $300 million in aircraft as opposed to the computer model projection for peacetime attrition. This is a result of the more experienced force and better maintenance, directly resulting from our manpower initiatives.

But the best good news, Mr. Chairman, is the transformed atmosphere and management procedures in the Pentagon. Despite some disinformation and erroneous facts recently reported, particularly in journals of record, the management of Defense procurement is less difficult today than it was 2 years ago, thanks to the major transformation brought about by the Secretary of Defense, Caspar Weinberger. By instituting a major, commonsense reform of accountability and delegation of authority he has enabled management initiatives, based on the 32 Carlucci initiatives, to begin to be realized.

But the results, Mr. Chairman, speak for themselves and the results show that we have broken the spiral of unending cost overruns and cost increases that, in themselves, have constituted another increment of unilateral disarmament over the last decade.

For instance, last year we delivered 25 ships in the Navy, not the 6 that Time magazine reported. These ships averaged slightly ahead of contract delivery date and under budget; 20 of these 25 ships were a total of 11 months ahead of schedule, 19 to these ships were actually below or on the contract budget.

Forty new construction and major conversion contracts were awarded in 1982. All were awarded, not within the cost overrun cycle reported by Time, but rather within 1 percent of the original Navy contract estimates. For the first time on record all ships appropriated in a given year were put under contact the same year. This is the first time since World War II, Mr. Chairman, that that has happened.

By the end of this year all but two Navy ship programs, Trident and LHD, will be awarded competitively resulting in 94 percent of the Navy's 5-year shipbuilding and conversion plan awarded competitively. When this administration came into office, Mr. Chairman, 15 percent of Navy procurement was competitive. That law figure is a thing of the past.

We have started multiyear contract initiatives that have yielded major savings. Last year we awarded 18 multiyear contracts including the two CVN's which will save a minimum of $750 million for the C-2ACOD aircraft which will save a minimum of $89 million just as two examples. The fiscal year 1984 budget now before you includes similar multiyear contract initiatives such as the LSD-41 with savings that will amount to at least $246 million below original contract estimates.

Perhaps most important to those of you who have borne with us during the 10 years of difficulties with claims and litigation over the submarine building programs is that today, for the first time in decades, we do not have a single outstanding claim against Navy shipbuilding programs.

In the aircraft amd missile acquisition field, Mr. Chairman, the Navy initiatives are primarily and most importantly based on a major commitment to competition. We have ended on attitude forced by years of budget cutbacks, forcing us into sole source relationships on a cost-plus basis that have been a principal cause of high spiraling cost overruns.

Navy initiatives, including second sourcing, achieved similar success despite rising prices across the board in the aerospace industry. Firm fixed-price contracts, for the F/A-18 for instance, brought the unit cost 13 percent, in actual dollars below the previous year's contract price. There is no possibility of hidden costs. The fly-away price of the F/A-18 in 1982 was $22.5 million, firm fixed-price, and the price will continue on the learning curve of reduction.

We signed firm fixed-price contracts for 10 E-2C's that achieve a $1 million per aircraft real reduction in price over the year before. In the fiscal year 1983 increment the SH-60B LAMPS was contracted at a unit price 28 percent below that of the year before. The AV-8B Harrier was contracted at a fiscal year 1983 price 35 percent lower than the 1982 unit price. In fact, we were able to achieve, thanks to the foresight of tough negotiating price options, a $7 million reduction per plane in unit cost for 1984. The A-6E contract negotiations now about to be concluded will achieve, what was promised to you last year, a 19-percent reduction in the original budgeted price.

So, you see the news is very good for the Reagan program despite congressional cuts and other budgetary reductions from the original budget resolution 2 years ago. For 1984, we are about $4 to $6 billion below what Congress projected for us at that time. We are nevertheless on track.

This year we present you with an austere budget. It provides us with only 1.9 percent real growth over last year. We would like to have ideally more than that. It is a balanced program, that will continue to improve operational readiness, personnel, maintenance, and the undramatic accounts just as steadily as was achieved over the past 2 years. At the same time we are achieving the 600-ship Navy and the tremendous improvements in modernization for the Marine Corps, the improvement to one deployable MAF and one deployable Marine amphibious brigade. We can do it.

There is a lot of loose talk that somehow Defense must take their fair share of cuts, whatever that means. Mr. Chairman, we cannot help you. We cannot help Congress in pointing to priorities in our program because there are no priorities in this program. It is a delicately balanced program weighing all of the elements that make up preparedness. You cannot take from modernization, from force structure, from readiness, from any of the accounts without undermining the preparedness of the overall program.

Our program is based on commitments that are provided to us by Congress and the President. We do not ask for these commitments. They bind us today to the world's three major oceans in time of peace, as we see in Lebanon, and as we see in the forward deployments in the Pacific and Indian Ocean and the Persian Gulf and North Atlantic as well as in time of war.

If cuts are to be taken, Mr. Chairman, Congress must face up to the fact that it is national commitments first that must be reduced and not to pretend that we can meet the commitments and still cut from this austere budget.

Thank you, Mr. Chairman.

[The prepared statement of Secretary Lehman follows:]

Prepared Statement by Hon. John F. Lehman, Jr.

Mr. Chairman, I welcome this opportunity to offer my assessment of the current posture of the Navy-Marine Corps team for Fiscal Year 1984.

Any discussion of our current posture must be placed in the context of the President's general defense policy. That policy is based not only on an assessment of the threat, but on the necessity to repair critical gaps in our defense—the product of past neglect.

Two years ago the President presented to Congress a program to reverse more than a decade of American unilateral disarmament and declining military strength. In the preceding ten years, real defense spending had declined twenty-two percent, our nuclear megatonage had been cut in half, our strategic bomber force had declined by 25 percent, our ballistic missile submarine force had dropped from 41 to

31, and our Navy had been slashed from nearly a thousand ships to 468, and from 23 aircraft carriers to 12.

During this same decade, the Soviet Union had carried out one of the most massive programs of peacetime military modernization in history. Since 1965, the Soviets increased their military spending by about four percent real growth per year, nearly doubling their spending over the past fifteen years. Their activity has been especially impressive in the Soviet Navy, which was converted from a coastal defense force to a modern "blue-water" fleet capable of power projection throughout the world.

This combination of Soviet increases and American reductions led the Chief of Naval Operations to testify to Congress that the United States no longer enjoyed superiority at sea.

For the Navy and the Marine Corps, President Reagan set a clear objective: To regain clear maritime superiority before the end of this decade. As the President has put it: "Though the Soviet Union is historically a land-power, virtually self-sufficient in mineral and energy resources and land linked to Europe and the vast stretches of Asia, it has created a powerful blue ocean Navy that cannot be justified by any legitimate defense need. It is a Navy built for offensive action, to cut free world supply lines and render impossible the support by sea of free world allies.

By contrast, the United States is a naval power by necessity, critically dependent on the transoceanic import of vital strategic materials. Over 90 percent of our commerce between continents moves in ships. Freedom to use the seas is our nation's life blood. For that reason, our Navy is designed to keep the sea lanes open world wide; a far greater task than closing those sea lines at strategic choke-points. Maritime superiority for us is a necessity. We must be able in time of emergency to venture in harms way, controlling air, surface and subsurface areas to assure access to all the oceans of the world. Failure to do so will leave the credibility of our conventional defense forces in doubt.

We are * * * building a 600 ship fleet including 15 carrier battlegroups."

As this committee well knows, maritime superiority is but one component of our national strategy. Nonetheless, it is a fundamental requirement, necessary for the success of any national strategy.

The program put before Congress two years ago to achieve this objective was built upon seven elements.

First, a more realistic strategy for the use of Navy-Marine Corps forces to maximize their deterrence in peacetime, and to prevail if deterrence fails.

Second, the restoration of the quality, training and morale of our personnel.

Third, the restoration of the readiness of the Navy, and Marine Corps through adequate maintenance, repair, spare parts and support.

Fourth, the importance of our sea based nuclear deterrent, the most survivable and enduring component of the U.S. strategic triad.

Fifth, the establishment of a shipbuilding, reactivation and conversion program to increase the force with the right kinds of ships and to save an industrial base on the verge of collapse.

Sixth, to establish an aircraft modernization and procurement program to restore aircraft numbers and quality to meet operational requirements.

Seventh, to build up stocks of ammunition and missiles to realistic objectives for sustaining combat.

MID-TERM ASSESSMENT

The Navy and Marine recovery program in pursuit of these objectives has now been underway for two years. It gives me great pleasure to report that the program is on course. Moreover, we are much closer to the achievement of many of our objectives than is generally recognized. The budget for fiscal year 1984 that we have just submitted will be the fourth Reagan defense recovery budget, counting the 1981 Supplemental and the 1982 revision. The effects of these programs are everywhere apparent in the Navy and Marine Corps today. These dramatic effects add up to much more of an increase in strength, confidence and capability than is proportionate to the additional funding levels provided in the past two years.

The threat to our maritime interest

The death of Leonid Brezhnev and the coming to power of Chairman Andropov have failed to produce any discernible change in the expansive thrust of Soviet military strength. Indeed, it would be surprising if we were able to detect changes of policy so early in a period of power consolidation within the USSR. Thus the growth of military capability in the Soviet Navy and the continued advance in the scope and sophistication of its activities continue unabated.

During 1982, Soviet naval operations showed advances in sophistication and capability. For the first time, exercises by Backfire bombers against U.S. carrier groups were conducted. We saw the first attempts by air-to-air missile-armed Forger V/TOL aircraft to intercept U.S. naval aircraft. Another new element was the participation of the carrier *Kiev* in support of a massive Warsaw Pact exercise, Shield 82. In Southwest Asia U.S.-built Cam Ranh Bay in Vietnam, provided support for another innovation. A Soviet carrier battle group, headed by the *Minsk*, was deployed to the Indian Ocean. Closer to home, the dispatch of a cruiser/destroyer/submarine task force to Cuba highlighted the increasing importance to the Soviet Navy of its Caribbean Sea enclave.

Soviet and Warsaw Pact shipyards continuing their steady stream of deliveries to the Soviet Navy during 1982. Among the combatants completed were eight submarines, one curiser, one destroyer and six frigates and corvettes. During 1983, we are expecting to see the first deployment of the third *Kiev*-class carrier, the first of the *Typhoon* class nuclear-powered ballistic missile submarines, and the first of the new Black-COM-1 class cruisers. The fourth *Kiev*-class carrier is fitting out, and the second *Kirov*-class nuclear-powered cruiser is nearing completion. Large destroyers of the *Sovremennyy* and *Udaloy* classes continue in production at two major yards and there are no fewer than seven different submarine classes currently being built.

Evidence continues to mount on the new, large conventional carrier program, and Backfire bombers continue to enter the Soviet Naval Air Force. The new Helix antisubmarine helicopter is beginning to replace the older Hormone, and in 1982 Helix was deployed for the first time on a carrier on the *Kiev* class. Polish shipyards continue to supply amphibious warfare ships and repair ships to the Soviet Navy, despite the turmoil in that nation.

As before, the USSR continues to devote a portion of its naval shipbuilding capacity to foreign exports, and in 1982 the parade of submarines, guided missile destroyers, missile and torpedo boats, amphibious ships and patrol craft went on unbated. Indeed, the Soviet Union is the world's single largest exporter of naval hardware. Cuba, in 1982, received more arms shipments from the USSR than in any year since 1962, and Libya, Algeria, and India all received major deliveries of Soviet naval equipment.

Even more important, perhaps, than the litany of new and continued construction of Soviet naval ships and aircraft, is the incremental improvement of the weapon and sensor systems in those ships and aircraft. New missiles, naval guns, mines, torpedoes, radars and sonars—to name but a few weapons systems—are joining the Red Fleet at a steady pace, aided in part by the continued transfer of Western technology useful to Soviet military activity. Soviet exploitation of the best of Western scientific achievements constitutes a major threat, not only to our military forces, but also to the very fiber of the Western industrial economy.

The share of the Soviet defense budget allocated to the Soviet Navy has been steady for many years. As that budget grows in absolute terms, so does the capability of their fleet. I have highlighted some of the major programs and operations of the last year, but it is simply astonishing to view the across-the-board accomplishments of Soviet naval industry and the Soviet Fleet. A balanced naval force has been developed, with repair, salvage, mine warfare, replenishment and a myriad of other requirements receiving attention right along with combatant elements. It is this dedication to the broadest gauged concept of seapower that permits the Soviet Navy to operate globally on a daily basis.

In addition to the primary threat of Soviet naval and land-based forces, the United States Navy and Marine Corps must be able to cope with potential threats from other kinds of forces as well. Two recent incidents—in the Gulf of Sidra in 1981 where U.S forces were engaged by Libyan forces armed with Soviet-supplied weapon systems, and the 1982 conflict in the Falklands where modern anti-ship cruise missiles and nuclear attack submarines were used in combat for the first time, graphically illustrate that for U.S. Navy and Marine forces committed to a global mission, there is no such thing as a "low-threat area".

Strategy

In the face of these varied dangers, we set as a major goal the creation of a more realistic strategy for the use of our forces. Current naval strategy for the achievement of maritime objectives is built upon a number of fundamental premises. First, the Soviet threat to the maritime lifelines of the free world is now permanently deployed in every area of our vital interests. It follows that a conventional naval conflict between East and West cannot be limited at sea to a single ocean area. Second, the global nature of our naval force requirements derives from some forty treaty relationships. For the Navy and the Marine Corps these requirements are not matters of choice. They must all be met.

The implication of these two premises is far-reaching. The disposition of forces on both sides has changed dramatically in the past decade. In contrast to ten years ago, the Soviets now have a Pacific fleet of some 765 ships and combatant craft and now operate from forward bases such as Cam Ranh Bay and Da Nang in Vietnam. At the same time, the lower 48 United States have become dependent for one-third of their oil needs on the Alaskan sea lanes. In fact, we are considerably more dependent on Alaskan oil than Middle East oil. Thus, the United States can no longer consider vacating one ocean to reinforce another in time of conventional war.

A third major premise is that the West can no longer rely on a passive defensive posture at sea. We simply do not have the merchant tonnage available to sustain heavy losses in a submarine war of attrition as we did in World War II. The Soviets today have over 280 attack submarines; Hitler began the second World War with fewer than 50 ocean-going submarines.

The Soviets are well aware of the maritime vulnerability of the West. They have assembled a massive fleet of diesel and nuclear attack submarines, and have exercised it with the intention of operating in time of war from areas much closer to the North Atlantic than the Kola Peninsula. Our answer to this threat cannot be simply to throw a passive barrier across the Greenland-Iceland-UK gap. We must be able to prevent the Soviets from achieving the initiative and thus enabling their submarines to prey on shipping in the Atlantic and Pacific.

Similarly, NATO must command the entire Mediterranean Sea if the security of the southern tier members of NATO is to be ensured.

Let us not overlook an important conseqeuence that flows from NATO control of the flanks. The successful achievement of NATO objectives on both the northern and southern flanks will compel the Soviets to divert forces to their adjacent areas, ultimately denying Moscow the advantage of concentrating all of its military power for an assault in central Europe.

Thus our maritime strategy must be based on a forward defense. Such a successful strategy at sea is not, as some armchair strategists would suggest, an alternative to a coalition defense of Europe. Nor does it impede a strong, improved and modernized conventional land defense of NATO. Instead, our maritime strategy complements these objectives. Its achievement is a necessary prerequisite for the success of any defense of the central front of NATO.

Similarly, in the Pacific and Indian Ocean theatres, geography and the naval and land based forces of the U.S. and its allies provide a clear strategy for success.

Much progress has been made in the past two years towards redesign of our peacetime forward deployments, our exercises, and our integration of Navy, Marine Corps, Air Force and Army assets to implement this strategy.

Flexops

Since World War II, Presidents have made use of forward deployed battle groups and Marine amphibious units more than 250 times to keep the peace. Indeed, regular forward naval deployments have proven to be a most stabilizing deterrent to conflict. The Falklands offered a contrasting example. If the United Kingdom had indicated an intention to continue its regular peacetime deployments to the Falklands, it might well have avoided that tragic conflict. But peacetime deployments are not merely to show resolve or to manage crises. For the Navy and the Marine Corps they are also the best and most realistic method of enhancing training and readiness. In keeping with our new strategy, we have completely reordered our method of peacetime deployment of naval forces to add much more realistic multi-carrier operations, greater flexibility for theatre commanders, and far more useful training, while at the same time reducing the ratio of time out of home port for our Navy and Marine Corps personnel. This new method of deployment, called "Flexops" has resulted in multiple carrier exercises in the Norwegian Sea, the Eastern Mediterranean, the Caribbean and the Aleutians. It has significantly enhanced the readiness, morale, and diplomatic flexibility of our naval forces.

In 1982, the Navy and the Marine Corps participated in more than 157 exercises world-wide, a third of which were joint or combined exercises with other U.S. Services, or allied and friendly nations abroad. These operations were conducted in all types of conditions—arctic, desert and jungle. The ready capabilities of our Marine amphibious teams are now being dramatically demonstrated in Lebanon, where they are serving with great restaint under difficult conditions.

Personnel

These achievements could not have been possible without major progress toward our second goal—the restoration of the quality, training and morale of our personnel.

Recruiting has been excellent, with 30 months of above-goal enlisted accession rates, and very high quality recruits in both the Navy and Marine Corps. We have enjoyed a very successful recruiting climate in officer programs as well. Shortfalls persist only in medical and nuclear power areas and they are improving. We are looking to a relatively stable accession rate of 150,000 per annum. The growth achieved to man the larger fleet has come not from more recruits, but from better retention.

Retention continues to be excellent. Though requirements have increased, we are successfully reducing the shortage of senior enlisted personnel and the shortage of mid-grade officers in the surface, subsurface and air warfare communities. This leads to substantial economies in manpower costs. We estimate—conservatively—that enlarging the force by increased accessions alone, rather than by increased retention, would require a $1 billion increase in the recruting and training budget. Since fiscal year 1980, first term reenlistment rates for Navy have increased from 36 to 54 percent, 23 to 37 percent for Marine Corps, and the total career reenlistment rates are up for Navy from 67 to 79 percent and 50 to 76 percent for Marine Corps during that same period due primarily to pay comparability and bonuses such as Selective Reenlistment Bonus (SRB) and Aviation Officer Continuation Pay (AOCP), which make us competitive in today's marketplace for a dwindling supply of qualified young people.

Disciplinary actions (Unauthorized absences/Desertions) within the Department of the Navy have fallen off significantly. In fiscal year 1980, there were 51,400 unauthorized absentees (UA's) and 17,800 declared deserters (UA in excess of 30 days). By the end of 1982, these figures had been reduced by 9,800 UAs and 5,560 deserters.

Drug abuse among members of the naval service is down dramatically, as a direct result of the Navy's "get tough" policy which includes widespread, highly accurate random urinalysis testing, the use of drug detector dog teams, and no tolerance of second offenders.

Sea pay is the key to manning the fleet with careerists. More personnel are requesting sea duty extensions and are reenlisting for sea duty than at any time in recent memory. Sea pay provides for the experience level necessary for our current high operating tempo.

Selective Reenlistment Bonuses (SRB) are a carefully constructed retention tool to eliminate the critical skill shortfall which has plagued the Department of the Navy since the mid 1970s. Geared toward critical skills, the SRB was credited with saving 8,300 petty officers for the Navy in fiscal year 1982, at a savings of $1.9B to train replacements. The Marine Corps has had similar success in applying the SRB. Over the course of the last two years, the Marine Corps has reduced its critical skill shortages by 40 percent and is projecting a further reduction of about 20 percent by the close of this fiscal year.

AOCP has been one of our most successful, cost-effective programs, not only in terms of critical personnel retention but relative to aviation safety as well. Pilot retention has improved 14 percent over projections since fiscal year 1981, while Naval Flight Officer (NFO) retention improved 12 percent in the same period. At training costs of $850,000 for a new pilot and $650,000 for a new NFO, the program has more than paid for itself.

One clear indicator of improved aviation proficiency is our progress in reducing aircraft mishaps. Over the course of the past thirty years, the annual number of mishaps has been driven down from 2,213 to 90. Last year, the Department of the Navy completed the safest year in its aviation history. A major accident rate of only 4.44 mishaps per 100,000 flight hours, while flying over 2 million hours, was a direct result of AOCP, a revamped aviation safety program, strong command attention, and a concerted all hands effort to "do the job right" and safely

Readiness

Our achievements in improving the personnel situation have been matched by progress towards our third major goal, the restoration of readiness. While our force structure expands steadily to a 600 ship Navy, the readiness of each ship, Marine unit, and aircraft squadron has improved apace. Two years ago, most of our ships could not be fully manned because so many career personnel were leaving the Service. Today all of our ships and all of our forward deployed marine units are fully manned, and all of our aircraft squadrons are very nearly at full manning vessels.

It is also most important to note that a very substantial portion of the actual dollar increases of the Reagan naval recovery program was devoted to the undramatic but very essential areas of spare parts and maintenance. This vital element of the Reagan initiatives has already had dramatic effects on the fleet. The 514 ships in the fleet today average eight percent higher mission capability than the 468 ships of two years ago. The average Navy and Marine Corps aviation squadron is sixteen percent more combat capable today than two years ago, and statistically has a third fewer accidents per 100,000 flying hours.

Naval strategic nuclear forces

Our sea-based deterrent force is the most survivable and endurable component of our strategic triad of nuclear forces. Nearly 70 percent of U.S. strategic nuclear warheads are based at sea. A broad range of analyses by all the responsible agencies of the U.S. Government remain unanimous in their view that the SLBM force is essentially invulnerable today and will remain so for the forseeable future. This has been made possible by an aggressive program of present and future threat assessment, submarine improvements to make them less detectable, and extended missile ranges to provide more ocean area in which the submarines can patrol undetected.

The 31 Poseidon ballistic missile submarines now in the SSBN force were constructed in the 1960s and converted in the 1970s to carry 16 C-3 missiles armed with MIRVs. Further modifications to upgrade 12 of these submarines to carry the Trident 1 (C-4) missile were completed in 1982. The newest addition to our SSBN force is the Trident submarine. The first, U.S.S. *Ohio*, was deployed in the Pacific in October 1982. U.S.S. *Michigan* has been delivered and will deploy in 1983. The Trident SSBN has 24 launchers and will be able to carry the larger Trident II missile.

The Trident II (D-5) missile will be effective against the full target spectrum and will provide a high confidence sea-based deterrent well into the next century. This new missile will minimize total weapon system costs by increasing the SLBM payload to that permitted by the larger Trident submarine launch tube, thereby allowing our strategic capability to be achieved with fewer missiles and submarines. We will begin full scale development of the missile this year, with initial deployment scheduled for 1989.

Shipbuilding

Let me turn now to the fifth goal, to increase the fleet with the right kind of ships and to save a shipbuilding industrial base on the verge of collapse. With new ship construction, reactivations, major conversions and build/convert-and-charter programs, we have more than doubled the shipbuilding rate of the 1970s. We expect to reach the 600-ship Navy by 1989. Most importantly, our shipbuilding program is made up of the right kinds of ships in the right mix.

Carriers.—With the passage of the fiscal year 1983 DOD funding legislation one contract was signed in December 1982 for the construction of two more CVNs at Newport News. Thanks to considerable pre-planning, long lead procurement and pre-fabrication for both ships is already far along, constituting a major infusion to this invaluable industrial base. These two ships and the expected extension of service life of *Midway* will bring us to the 15 carrier level, a level which will be maintained for the remainder of this century.

Submarines.—The U.S. Navy remains convinced that diesel electric submarines, as useful as they might be in coastal and choke point areas, are not cost-effective for United States naval missions. The judgment is correct only if we can depend on more than 150 diesel electric submarines in our allied navies capable of carrying out those important missions. The success of the British nuclear attack submarines in keeping Argentine Navy surface forces in port during the Falklands conflict clearly illustrates why growth to 100 nuclear attack submarines is a fundamental part of the 600 ship Navy. It is, therefore, important that we maintain a building rate of three to four *Los Angeles* class submarines and at least one Trident submarine per year during the FYDP. In addition, we are asking for additional R&D funding in fiscal year 1984 to accelerate development of those technologies necessary for a new class of attack submarine for the 90s.

Surface combatants.—The first Aegis cruiser, U.S.S. *Ticonderoga*, was commissioned in January. There are ten currently authorized and seven under contract. The fiscal year 1984-88 plan includes 14 more.

Long lead funding is requested in the fiscal year 1984 Budget for the first of a new class of destroyer, DDG-51, the *Arleigh Burke*, which will be the replacement for the DDG-2 and DDG-37 class destroyers now approaching 30 years of service. This ship will have an Aegis-type air defense system, the latest antisubmarine warfare capability, and will incorporate the most modern construction and materials technologies. Its cost and capability will be midway between the destroyer and the Aegis cruiser. The first of the four *Iowa* class battleships to be reactivated, U.S.S. *New Jersey,* was recommissioned in December and will make its first operational cruise this summer in the western Pacific. The second, U.S.S. *Iowa,* is currently being reactivated and will be delivered to the fleet early in 1984. Long lead funding for the third ship, U.S.S. *Missouri,* is contained in the fiscal year 1984 Budget, with the fourth ship, U.S.S. *Wisconsin,* to follow one year later.

Amphibious ships.—The Department of the Navy's objective is to achieve the capability for simultaneous independent deployment of the assault echelons of a Marine Amphibious Force (MAF) and a Marine Amphibious Brigade (MAB). This capability will provide increased flexibility to our national leadership in responding to a wide variety of situations. An integral part of the program includes plans for LHD-1's, LSD-41's, LPD's, and LCAC's. Our fiscal year 1984-88 program funds 13 amphibious ships. The fiscal year 1984 budget requests authorization for the lead ship of the LHD-1 class, the multi-purpose amphibious assault ship. Two more are planned for fiscal year 1986-88. This ship is based on LHA design, and will significantly enhance amphibious capability, and provides a new capability to deploy as a Harrier and ASW helicopter carrier. We are requesting the fourth LSD-41 in fiscal year 1984. A new amphibious ship, the Landing Platform Dock (LPD) is funded for development in fiscal year 1984-88. Similar in size to LSD-41, it will carry more troops, vehicles, helicopters, and cargo but fewer landing craft. Lead ship authorization is planned for fiscal year 1988.

Mine warfare forces.—The Soviets have a huge mine inventory containing a wide variety of highly sophisticated mines. They also possess an excellent delivery capability employing all known types of systems. Our planning calls for our allies to assume responsibility for mine countermeasures in their own areas, while we ensure a breakout capability from our own harbors and provide minesweeping for our amphibious operations. Currently, we face a serious shortage of minesweeping ships. We are requesting 4 mine countermeasures (MCM) ships in fiscal year 1984. Eight more are planned for fiscal year 1985-88. The Congress through fiscal year 1983 has funded two MCMs. The lead ship, MCM-1, Avenger, is about to begin construction. This year we are also requesting authorization of the lead ship of a new class of smaller mine-hunters, the MSH-1, designed to augment MCM ships during initial clearance and harbor breakout operations. 13 MSH are planned in the five year plan, with a program goal of 17 ships.

Support ships.—In fiscal year 1984, we are requesting three civil service manned fleet oilers (TAO). These ships keep battle group support ships (AOE/AOR) and other ships supplied with fuel. We plan 16 more TAOs for fiscal year 1985-88. Beginning in fiscal year 1986, we will procure additional multi-product ships for battlegroup operation. Three AOEs and three AEs are planned for fiscal year 1986-88, to align the number of fast replenishment ships with the number of aircraft carriers. To alleviate the projected shortfall in surface fleet tenders in the late 1980s, we have requested funds for two destroyer tenders (AD) in our fiscal year 1984-88 five year plan.

Sealift.—In fiscal year 1984 we are requesting $760M for sealift, an essential element of our forward defense strategy. Our request will purchase greater capability, more rapid deployment and a larger ready reserve. As a result, a wider range of strategic and tactical options will become available.

Deployment times for our forces are being shortened by prepositioning ships. We will expand our capability with initial delivery of TAKX ships in fiscal year 1984. Fast high volume delivery capability will also be expanded, with the conversion of four more SL-7 ships (TAKRX). These eight ships will provide, for the first time in recent years, dedicated, fast common use sealift for large combat forces. Expansion of sustaining lift is also planned with the acquisition of additional ready reserve ships from the merchant fleet. This work is complemented by an aggressive program to improve our ability to rely on the merchant marine. To that end, we are procuring conversion equipment and specialized offloading machinery to improve the military utility of a larger number of merchant marine container ships.

The current Navy program for sealift at long last recognizes the true importance of this vital warfare element to the development and maintenance of strategic and tactical options for our conventional forces.

Aircraft programs

The significance of air power at sea is a fundamental axiom of modern warfare. Yet, in each year of the eight years preceding the Reagan Supplemental Budget for Fiscal Year 1981, the Navy and Marine Corps were not permitted to procure enough aircraft to replace those lost through peacetime attrition and retirements. Since the

81 Supplemental, naval aircraft procurement has been nearly doubled. Coupled with great improvement in aircraft safety, the Navy Department can now project a reversal of the inventory decline as recent aircraft procurements are delivered to the fleet.

Fighter attack aircraft.—The Navy and Marine Corps now temporarily operate six different tactical aircraft. However, in the very near future, with the F/A-18's replacement of the old but proud F-4 Phantom and A-7 Corsair II, and the A-4 Skyhawks replacement by the AV-8B, our inventory will consist of four modern, up-todate tactical aircraft, all of which remain in production. The Navy will then operate from its carrier decks only the F-14 Tomcat, the finest air superiority fighter in the world today; the A-6 Intruder, the best and only true all-weather attack aircraft; and the highly flexible F/A-18 Hornet strike fighter, which gives every indication of being an outstanding multi-purpose aircraft. The U.S. Marine Corps will operate the F/A-18 strike fighter, the A-6 Intruder and the highly versatile AV-8B Harrier II. Our recent decision to continue with product-improved procurement of the F-14 and A-6, the introduction of the improved AV-8B in early 1985, and the long term acquisition of the new F/A-18 assures that our tactical aircraft will continue to meet the threat at the highest levels of modernization and readiness.

These programs, however, do not mean that we are neglecting the aircraft of the future. For that reason, technology assessment studies will be continued to evaluate future Advanced Aircraft development.

The F/A-18 strike fighter, as it replaces the F-4 and A-7, will give naval aviation new flexibility. Although it was not designed for the ranges of pure bombers, the F/A-18 has been found to possess excellent attack performance. This, along with its outstanding air-to-air performance, superior maneuverability, improved Reliability & Maintainability (R&M), survivability and multi-mission capabilities, make it a welcome addition to the fleet.

As the Navy gains experience with the F/A-18 and as its newer capabilities become integrated into airwing tactics, optimum airwing mixes will be established. A program for evaluating the best composition of carrier airwings by varying the mix of F-14, F/A-18 and A-6 aircraft has now been formalized and will be put into operation this fall in U.S.S. *John F. Kennedy*. *Kennedy's* airwing will evaluate the effectiveness of an all A-6 and F-14 airwing, with the A-6 filling all attack missions. During the next evaluation phase, U.S.S. *Constellation* will begin workups in fiscal year 1984 then deploy in fiscal year 1985 with the first operational Navy F/A-18 squadrons assigned as direct replacements for existing A-7 squadrons. In addition, the carriers *Coral Sea* and *Midway* will be converted to support and deploy the F/A-18 in place of both F-4 and A-7 aircraft.

In summary, the Department of the Navy is streamlining its tactical aircraft inventory through retirement of older aircraft, introduction of newer, more capable aircraft, and through cost effective modernization and improvement of operationally proven aircraft. With these programs, our tactical air force will become more flexible and combat ready. Through the inherent flexibility of different airwing mixes, our current aviation program will provide the most optimum tactical aviation forces for a wide range of military tasks.

Anti-submarine warfare aircraft

P-3 update.—In support of our ASW program, we are planning to baseline all of our P-3C aircraft with the very capable Update III ASW suite. We will maintain our production base by utilizing both foreign military sales and a planned U.S. buy of 5-6 aircraft per year. By holding the purchase rate constant, the Update III Program can be accelerated. In addition, we have begun to plan a competitive Update IV program to begin improvement of our capability against the continued improvements of the Soviet submarine threat.

SH-3 helo.—We are planning to start a replacement program for the SH-3 Carrier Based ASW Helicopter, which will start leaving the Fleet in the early 1990's. We intend to use a derivative of the SH-60B, with very minor modifications, equipped with a dipping sonar to handle both this requirement and our important CV Search and Rescue (SAR) requirements. The need for a dipping sonar carried by this helicopter is considered an urgent requirement in view of the severe anti-ship torpedo threat posed by the Soviet submarine force. The acoustic environment surrounding the battlegroup will be so noisy that, once inside the outer screen, the CV helo in effect becomes a carrier's anti-submarine point defense system and represents a necessary and powerful deterrent.

SH-60.—Following the extraordinarily successful development of the SH-60 LAMPS helicopter system, we entered production in 1983. As a result of a Congressional reduction to 27 aircraft of the originally requested 48 helicopters, we experienced a 17.5 percent increase in unit cost. Nevertheless, this successful and needed capability to provide localization and attack against submarines attempting to penetrate our outer zone ASW defenses must be procured. Thus we are attempting to stabilize the production line at 24 helicopters per year.

SH-2 LAMPS I.—To provide added capability to those ships that will not receive LAMPS III, primarily the FF-1052 Class and early ships of the FFG-7 Class, we decided to reopen the SH-2 production line, which had been closed for some time. I am pleased to report that this effort has been extremely successful and that we are procuring these helos within schedule and under cost.

S-3.—I am pleased also to report that over the last year there has been a marked improvement in the performance of the S-3 carrier-based ASW aircraft. Since 1981 it has experienced a 19.1 percent improvement in being mission capable and, in fact, has emerged as the Fleet aircraft with the best record for 1982. This very capable aircraft will be provided with an improved ASW suite and will remain a major contributor to our battlegroup outer zone ASW capability.

Assault support aircraft.—Urgently required modernization and force structure improvements to the Marine Corps assault support helicopter community are proceeding apace. The Marine Corps currently operates a total of eight helicopter types of varying capability and age. Programs underway will eventually reduce the inventory to five helicopter types, and will produce significant reliability, maintainability, and operational lift capabilities. The CH-53E will improve the heavy lift capability from 36 percent of a Marine Division's combat essential equipment, weighing over 5,000 pounds, to 93 percent. The continued development of JVX is critical to replace the aging medium assault CH-46E's and CH-53A/D's. JVX's introduction in 1991 will add new and vital dimensions to our assault support capability.

Munitions sustainability

Our seventh and final objective was to build up the stocks of ammunitions and missiles essential to sustain our combat forces in any prolonged conflict. Every war since Korea, and most recently in the Falklands, has taught us that rates of consumption of high technology weapons always exceed even generous planning estimates. After more than a decade of serious neglect of weapons stocks, Navy and Marine Corps planners are perplexed to hear voices suggesting that we can afford to reduce defense budgets when, in fact, we do not have the ability today to fill the launchers and magazines of our active fleet of 514 ships even once with high technology munitions. A very high priority of the Reagan naval recovery program has been to improve our weapons stocks and the last two years has shown considerable progress. There is still, however, a long way to go.

Management reform

At the mid-point of the Reagan naval recovery program it is evident that its success has been made possible by the dramatic reform of development and procurement in the Department of Defense. Two years ago, Secretary Weinberger reversed a long and disastrous trend towards centralization of management and diffusion of accountability. His leadership has brought about a new discipline and a new accountability. Management authority has been returned to the Service Secretaries and far-reaching reforms have been undertaken. I would emphasize five key changes in the Department of the Navy:

First, stability in the program, avoiding the ragged ups and mostly downs of five year plans changing from year to year.

Second, discipline and accountability in contracting, which involves a fair sharing of the risk between the government and its contractors, providing an incentive for increased profits for excellent performance, and contractor assumption of the risk—and cost—of bad performance.

Third, competition, not merely in source selection but in procurement through second sourcing wherever possible.

Fourth, the firm disciplining of a habitual search for greater capabilities to meet ever increasing requirements. Unfortunately, the best can be the enemy of the good enough. Goldplating is now under control.

Fifth, the investment in high technology to save money as well as increase capability.

Let me elaborate on this last point. Staying on the frontier of high technology is expensive. But a high technology approach has paid off handsomely to the Navy and to the taxpayers. High technology has provided our margins of superiority in virtually every important area, including that which is least understood—affordability. For instance, twenty years ago a cruiser required 1,687 enlisted men and 116 officers. Today the Aegis cruiser—many times more capable than the cruiser it replaces—is manned by 300 enlisted men and 26 officers. Another good example is the F/A-18. Because of investment in high technology, this aircraft is currently requiring about one-third of the maintenance hours per flight hour of the aircraft it replaces. As a result, we are able to man F/A-18 squadrons with 50 fewer personnel than the aircraft squadrons they replace. This investment in high tech has paid off handsomely in aircraft safety as well. The current generation of naval aircraft, such as the F/A-18, has a safety record twenty times better than the so-called simple jet fighters of thirty years ago.

Results.—As a result of the aggressive application of these management reforms, the original naval recovery program of two years ago is still on course despite a succession of budget cuts below President Reagan's initial plan. Some specific accomplishments have been:

Difficulties with the shipbuilding industry in constructing ships have been resolved. After years of disputes, delays and overruns in our submarine construction programs, all submarines have been delivered on or ahead of schedule and within budget for the last year. For the first time in decades, there is not a single shipbuilding claim outstanding against the Navy.

Aircraft carriers.—The contract for CVN-71, the *Theodore Roosevelt,* was renegotiated, reducing the price by nearly $100 million and shortening contract delivery date by 14 months. The contract for CVN-72 and CVN-73 was negotiated at an expected savings to the taxpayer of $750 million.

Aegis cruisers.—Bath Iron Works was selected as a second source to compete with Litton for procurement of AEGIS cruisers in subsequent years.

Battleships.—New Jersey was recommissioned in December—a two billion dollar weapon system for $326 million, five weeks ahead of schedule and under budget. This is a superb example of the prudent use of existing capital assets for which the previous generation of taxpayer has already paid.

Overall in shipbuilding 25 ships were delivered to the Navy during 1982. Twenty ships were a total of 11 months ahead of schedule. Nineteen ships were on or below budget.

Competition has also enabled us to drive down the prices of two or our front line aircraft this year (the A-6E and the F/A-18) by 19 and 13 percent respectively, and on a firm fixed price basis.

Build/convert-and-charter programs.—To obtain maritime prepositioning ships quickly and efficiently, we have turned to build/convert-and-charter programs. Studies have shown that in terms of present value, we will save over $35 million per ship by chartering rather than purchasing. After accounting for tax aspects, the savings to the Treasury will still be over $28 million per ship.

The contracts are for cargo-carrying services which were awarded competitively at prices that will save the American taxpayers millions of dollars. The program also provides a positive impetus to the beleaguered U.S. Merchant Marine and to the depressed U.S. shipbuilding industry. Without such work, many of these shipyards would have closed. They remain in business today providing jobs and an industrial base for the Navy of the future.

These and other management initiatives have already resulted in such efficiencies that, despite some cuts in previous Navy budgets, we remain on course. The American taxpayer is clearly getting his dollar's worth of national security from the naval recovery program.

LESSONS LEARNED FROM THE FALKLANDS CONFLICT

Of course, the ultimate test of all that we are doing lies in our capacity to prevent war, or, if conflict should occur, to prevail in the achievement of national objectives. Many believe that the recent Falklands conflict offers important lesssons about naval expansion warfare that should guide both our choices of numbers and types of ships entering our inventory and our naval tactics. After extensive analyses, we have concluded that the U.S. Navy/Marine Corps team would have been very well prepared for a similar challenge. The Navy and Marine Corps force structure is admirably suited for long-range actions of this nature anywhere on the globe.

Most of what happened strongly supported the assumptions which underlie our naval program. Current efforts are based on almost forty years of post World War II experience. Our programs incorporate the wisdom gained through U.S. naval operations in peace and hostilities, with extensive and sustained deployments in European, Asian and Indian Ocean waters, often under tense conditions and almost always in close proximity to Soviet operating forces. The Department of the Navy, in conjunction with a larger Defense Department effort, has been conducting an exhaustive, all-source study and evaluation of the conflict to derive appropriate lessons for

U.S. Navy-Marine Corps planning. In fact, the 1984 budget submission already reflects initiatives taken on the basis of these lessons. The following summarizes the most important conclusions:

Personnel.—The performance, training, and morale of the personnel involved were clearly the most important determinants to the outcome.

Intelligence.—Next to personnel, the most important determinant may have been intelligence. Some observers have gone so far as to say that without the intelligence edge enjoyed by the UK, the outcome would have been reversed.

Defense in depth.—The British fleet lacked adequate fleet air defense in depth. As a result, they suffered a very high level of damage. Virtually none of the aircraft which hit the British ships from mainland bases in Argentina could have done so had there been modern, full-size carrier airwings in the opposing force. The Falklands again proved what has been proven in every sea conflict since World War I; air superiority is essential to victory and to the conservation of one's forces. The modern U.S. Navy carrier battle group offers an area of complete control some 600 miles across, above, on, and under the sea—an integrated three dimensional protection that would never have allowed Mirages and Exocets or other forces the opportunities permitted in the Falklands against the British force.

Large warships versus small warships.—One of the clearest lessons of the Falklands is that smaller, cheaper, less-well armed combatants can be a very false economy due to their greater vulnerability and decreased survivability, as demonstrated by the loss of the four Royal Navy surface combatants. If any one of the fourteen successful attacks against British ships had instead hit the battleship *New Jersey,* it could not have done sufficient damage to halt operations. The Exocet missile that sank *Sheffield,* for instance, would have barely damaged *New Jersey's* seventeen-inch armor belt. U.S. aircraft carriers would be able to absorb hits by a large number of Exocet-type weapons, yet continue to operate effectively. Smaller carriers deployed by the U.K. were far more vulnerable to complete loss from torpedo, missile, or bomb attacks because they lacked the multiple hulls, armor plate, and redundant damage control and protective systems of large U.S. carriers.

V/STOL Harrier performance.—British Harriers demonstrated excellent reliability and versatility during the battle; their overall availability was almost 90 percent. In air-to-air combat, Sea Harriers destroyed at least 20 Argentine aircraft, but 5 Harriers were lost to accidents, and 5 were lost to enemy action, though none in air-to-air combat.

The Harriers performed exceptionally well within their capabilities, but those capabilities were not designed to include keeping attackers from successfully striking the naval force and troops ashore, nor to interdict air resupply, which was carried out in support of Argentine forces right up to the eve of surrender.

Logistics.—The outcome of the battle may be seen as a failure of Argentine logistics and a major success of British logistics. Following their capture of the Falklands, the Argentines poured troops and military supplies into the islands, and a huge stockpile of weapons and munitions was built up. But the Argentine command in the Falklands was unable to distribute the supplies and weapons effectively, and troops in the field were critically short of some items that were available in abundance at supply depots right in the Falklands. The British logistics, in contrast, were hampered by more than 7,000 miles of ocean, an initial shortage of shipping, and limited stocks of certain material. Forty-five merchant vessels described by the Royal Navy as "ships taken up from trade" (STUFT), were used in supporting British operations.

The magnitude of effort required by the merchant fleet for an operation the size of the Falklands should underline a single fact: it would be impossible today to mobilize sufficient strategic sealift for adequate conventional deterrence in the face of attrition from submarine warfare on the scale of World War II. Allied naval forces can defend the sea lanes only by ensuring a forward defense against submarines.

Submarine operations.—The German-built *San Luis,* completed in 1974, made a patrol of an estimated 36 days during the conflict. She appears to have located and operated in the area of the main British task force. She was unable, however, to make a successful attack because of material problems. During the conflict, the British force prosecuted numerous possible contacts associated with *San Luis* without success. The ability of a modern diesel electric submarine to engage a stationary naval task force is not surprising. Such submarines are extremely quiet when operated at low speeds. For this reason a substantial multi-dimensional antisubmarine warfare defense is required whenever a naval task force is constrained to a limited area.

The Royal Navy deployed five nuclear attack submarines and one diesel electric submarine to the South Atlantic. One of these SSNs, HMS *Conqueror,* successfully intercepted and sank the Argentine cruiser *General Belgrano,* using fifty year old steam torpedoes. Following the sinking of the *Belgrano,* the Argentine Navy retired from action. Thus, the SSNs can be said to have eliminated the Argentine Navy as a factor in the war.

Ships survivability.—No defense in depth, however effective, can be regarded as impenetrable. Naval ships must, therefore, be built to take substantial hits and keep fighting. The Falklands battle is rich in lessons to be relearned. There has been extensive discussion about the effects of aluminum in warship construction and its relation to ships survivability. Although one class of the British frigates does have aluminum superstructures, the *Sheffield,* which was lost to an uncontrolled fire after being hit by an Exocet that did not detonate, had a steel superstructure. There is no evidence that use of aluminum contributed to the loss of any British combat ship. The decision to provide a steel superstructure in the new *Arleigh Burke* (DDG-51) class of U.S. destroyers was made well before the Falklands conflict. In general, U.S. warships have better damage control and fire fighting features built into them than any other Navy. The British experience in the Falklands with various materials and procedures is causing us to revise certain construction techniques and damage control procedures, especially with regard to our smaller combatants.

In summary, the Falklands demonstrated that modern warships can be defended against modern weapons such as cruise missiles, but that they must have a defense in depth and must be able to sustain hits, absorb damage, and keep on fighting.

The rules of engagement.—A new lesson to be learned from the Falklands, in contrast to earlier wars, is that in an era of modern computer and satellite communications, greater attention must be paid to command and control and rules of engagement. On the one hand, today's technology directs a virtual Niagara of communications on any opertional commander from the authorities above him. Procedures for disciplining and using such vast quantities of data have not kept pace with technology. On the other hand, delegation of authority to commanders on the scene carries with it the necessity for carefully considered pre-approved rules of engagement. This is particularly relevant to U.S. forces forward deployed in crisis situations—the more so because, as Admiral Gorshkov has put it so well, there is an enormous premium on "the struggle for the first salvo."

Ammunitions sustainability.—The Falklands is yet another reminder, following on every war since Korea, that rates of consumption of high technology weapons always exceed even generous estimates by planners.

Amphibious operations.—The British landing in the Falklands was hardly a classic amphibious operation and contains few lessons for our far more capable and sophisticated Navy-Marine Corps amphibious capability. Nevertheless, it does illustrate an often overlooked advantage of the amphibious assault force, vis-a-vis, their opposition ashore. While it is difficult in the era of modern communications and intelligence to achieve strategic surprise, it is still very easy to achieve tactical surprise and to land "where they ain't." A Marine amphibious brigade off the coast of the Virginia capes at dusk, can land anywhere between the tip of Long Island and Cape Hatteras before dawn.

Naval gunfire support.—The Falklands again illustrated the essential value of naval gunfire support. During the battle 17 British destroyers and frigates, mounting a total of 21 4.5 inch naval guns, fired over 7,800 rounds in support of the landings and subsequent campaign ashore. This fire supported friendly troops, suppressed enemy fire, destroyed enemy supplies and aircraft on the ground, and seriously hurt the morale of the defenders. The United States Navy currently has a large number of five inch guns in the fleet. The 1984 Budget provides for the procurement of the five inch laser-guided projectile which will greatly increase the one shot kill capability of naval gunfire. But the most dramatic increase in our Navy's gunfire support capability took place in December when the battleship *New Jersey* was recommissioned five weeks ahead of schedule and under budget. This one ship can deliver 800 tons of a variety of 16-inch and 5-inch ammunition types in the space of only 30 minutes. That is equivalent to the capabilities of 20 modern DD-963 class destroyers. The battleship carries more than 7,000 rounds of ammunition in its magazines. The maximum range of the 16-inch guns is 23 miles.

As a result of our Falklands analysis, we have made some changes to the pace and scope of certain fleet modernization and ship alteration programs. Some of these changes are accommodated in the fiscal year 1984 Budget. More will be reflected as our analyses are refined and we prepare for the fiscal year 1985 Navy Program.

CONCLUSION

Mr. Chairman, two years ago we set forth a program intended to recapture maritime superiority for the United States. It was based on a 600-ship Navy, built around 15 battle groups. At that time, some said it should not be done—that such a Navy would detract from other commitments, that both technology and innovation in naval warfare made surface ships vulnerable and obsolete. Others said that it could not be done, that we lacked the ships, the money, the men, and above all, the management capability to oversee such an undertaking.

But the events over the past twelve months—as in the year previous—have confounded the critics. The continued growth of Soviet forces and the Falklands conflict have confirmed our choices. The 600-ship Navy is well on its way. Accompanying the expansion of force structure has been an increasing recruitment of high quality personnel. Existing forces have been made more ready—our sailors and marines more skilled. Morale is high. Moreover, we have clearly demonstrated that we can manage the naval recovery program effectively, with many elements delivered ahead of schedule and under budget. We have tried very hard to be worthy of the confidence placed in us by the Congress and the American people.

Strategic planning, capable management and skilled personnel, however, are not the only requisites for the achievement of our goals. As Disraeli so aptly put it, "the secret of success is constancy of purpose." At this midpoint in our naval recovery program, the secret of success is, indeed, the constancy of our purpose. Mr. Chairman, the United States is well on its way toward maritime superiority. I am certain that with your continued support we shall achieve it.

Chairman TOWER. Thank you, Mr. Secretary.

Admiral Watkins?

STATEMENT OF ADM. JAMES D. WATKINS, USN, CHIEF OF NAVAL OPERATIONS

Admiral WATKINS. Thank you, Mr. Chairman.

This is my first opportunity to appear before this committee as Chief of Naval Operations. I am very honored and privileged to be here, sir.

I would like to make a short summary that is based on the more extensive formal statement that I have submitted for the record.

Chairman TOWER. Your entire statement will be entered in the record.

Admiral WATKINS. Mr. Chairman, you will notice in my statement that it is very positive in outlook. That is a significant change from the outlook presented to this committee by my predecessor 2 years ago at which time he said the Nation was "overexposed and underinsured." It was on "the ragged edge of adequacy when it came to our globally disposed forces; and without increase in budget resources, we would see perpetuation of a downward spiral toward maritime inferiority."

But with the budget supplemental in 1981, the budget amendment in 1982, and Continuing Resolution Act of 1983, we have clear and unequivocal evidence of a Navy on the mend, as the Secretary mentioned. It is more ready, more spirited and more able than I have seen in 20 years, thanks to a change in our national strategy, our Nation's desire for a stronger defense in the face of the inexorably increasing Soviet military power and the superb support and responsiveness of the Congress to the shift in emphasis.

I break my statement into three parts. The first 10 pages are devoted to strategy. Then I go into the Navy today as a baseline from which to develop the Navy of tomorrow as reflected in the 1984 budget submission, a discussion of which constitutes the third part of the statement.

NATIONAL AND MARITIME STRATEGY

On the national and maritime strategy I show how the maritime strategy is derived from national security objectives and from defense policy and guidance as reflected in the Secretary of Defense's annual report to the Congress. That policy is fuzed by our Joint Chiefs of Staff, the Unified Commanders, and the services. We also have a dialog between the various decisionmakers at the Defense Resources Board. At those meetings the unified commanders explain what they feel is necessary in the near term and then we project what we feel necessary in the midterm. Then we form longer range objectives.

In figure 1 on page 12 of my formal statement is a map displaying the disposition of our carrier battle groups worldwide during a 2-month period between September 26 and November 26, 1982. I think it is a very vivid illustration of what the Navy is all about as one of the leading arms of deterrence in peacetime.

I show the arrows of those carrier battle groups which consist normally of a carrier, seven escorts, auxiliaries of various types, the presence of one or two nuclear attack submarines.

You will see in the center of the diagram a picture of the Mediterranean where, after the President made the decision to reinsert Marines into Lebanon, the *Independence* moved eastward with a Marine amphibious unit that had only been taken out a week or so before. In order to provide backup support we brought the *America* battle group out of Norway, where it had been engaged in the major NATO exercises called Northern Wedding. It transmitted at high speed into the western Mediterranean as backup.

We also brought the 22d Marine amphibious unit out of Denmark, sailing at best speed to Turkey to effect a previously scheduled landing exercise there. This had been requested by the Government of Turkey as being extremely important to them at that particular time. More importantly, it added backup Marine capability in the event things went awry in the Beirut Airport area which was very fragile and questionable at the time.

Because the *America* battle group was about to deploy to the Mediterranean for several months, we had to get her home to prepare.

To relieve her and insure we could keep stability in the region with our allies in that part of the world, we moved the *Forrestal* west and through the Suez Canal, which now has been opened to our larger carriers.

In order to cover our one battle group requirement in the Indian Ocean, we sailed the *Midway* at high speed into the Indian Ocean awaiting the *Enterprise* which was then replenishing at Subic Bay.

As soon as the *Midway* was relieved by the *Enterprise* battle group she steamed north to stand by for the Korea contingency. Then you will see the *Coral Sea* battle group and *Ranger* battle group prepared to go to theater and return from theater respectively.

Those are 13 of the great national resources we have moving through the world carrying out national commitments at an operational tempo 15 percent higher than at the peak of the Vietnam war.

The Navy today has been presented in terms of personnel readiness, materiel, sustainability, modernization, and force levels.

Figure 2 on page 16 is the key figure. So often we are told that we cannot man the 600-ship Navy because of the famous 22,000 petty officer deficit that we reported to the Congress only 2 years ago. You can see on that figure that with the national spirit behind us and with the compensation initiative of this Congress, we have been able to not only improve the retention, but also to match the growing manpower curves of the Navy as we approach 600 ships.

At the end of the fiscal year 1982, despite that growth, we had a 17,400 shortage, a significant improvement in 1 year. We are predicting at the end of this year to be only 11,000 short. You can see we are realistically closing the gap. We have not been able to achieve that in prior years. It was a very discouraging outlook only 2 years ago.

In my opinion, that one element has improved our capability to fight and win by about 25 to 30 percent which is consistent with General Meyer's estimate for the Army.

Trained manpower is the key to readiness. That is why we emphasize retention of our career petty officers, the selected reenlistment bonuses that this Congress provided for example caused retention of many experienced personnel, saving $400 million that would have been spent recruiting, training, and developing new personnel.

These bonuses, along with sea pay are proven tools and are doing the job today.

MATERIAL READINESS

In material readiness, the Secretary mentioned the improvement in mission capability of our aircraft. The supplemental in 1981 and the budget amendment in 1982 are now beginning to be felt in the fleet in terms of spares and bullets in the bins. We are filling them up and that is why our readiness rates are going up.

This is a self-help program in the sense that we have better paid officers, better leadership, more spares, and more onboard ammunition to do our training. The net result is a very positive curve in all areas. We have eliminated much of the executable backlog in ship repairs, Navy support equipment and torpedoes.

The administration also approved a proposal by the Joint Chiefs of Staff to excute what we call flexible operations which has primarily affected the Navy. It eliminates fictitious barriers which tended to constrain the mobility of naval forces.

For example, recently we pulled the *Midway* battle group out of the Western Pacific back toward the Aleutians. Last fall we conducted the first dual battle group operation in concert with the Air Force in the western Aleutians. This demonstrated to the Soviet Union, only 500 miles to the west, that that is still our sovereign territory and key to our defense against threats to our western borders of the United States from the west.

These kind of operations under the rigidity of prior strategy would have been disallowed. We can now move worldwide based on our assessment of threats at the time and not be bound by rigid barriers in the ocean which should not exist. That is a very significant change for us. It has allowed additional homeport time, flexibility in training operations, and more flexibility for fleet commanders to assign their forces.

In sustainability I show the growth on figure 3, page 20, of how the bins are filling up, permitting us to go from what militarily would be an unsound concept of operating with inadequate weapons in our bins. We still don't have full ship fills of many of our weapon systems today, but they are filling up now and you can see how we are closing the gap in both threat-oriented weapons and the less sophisticated weapons we call level of effort weapons.

MODERNIZATION

In modernization, we are building a capability to meet the current and projected threats and to distribute our fire power to sea with Harpoon and Tomahawk, these can be fired from armored box launchers now and we will be able to fire them from vertical launch systems in the near future.

We have the finest information and warning system in our tactical air at sea which will permit us to carry out defense-in-depth which is one of the great lessons learned in the Falkland campaign.

We have hardened our command and control, both in conventional and strategic systems so that we can stand the tough and stressful environments warfighting at sea.

We have the D-5 missile in R&D on track and it will meet its IOC commitment in 1989 to go aboard the Trident submarine. It will give this Nation and its national command authority new flexibility, which heretofor has not been there. It is capable of hard target surgical kill of command and control hardened silo areas.

We have the new surface-to-air missiles called the SM-2 at sea now. It is an improved missile, and a new version with extended range capabilities is coming close behind.

Also, we are accelerating installation of the close-in weapon support system.

In addition to the close-in weapon support system we have in development a new system called the rolling airframe missile (RAM) coming along to deal with the supersonic Sea Skimmer. The tests so far of that system have been impressive.

We have the continuing program to stay ahead of the Soviet Union and one of our key areas is superiority in antisubmarine warfare. The LAMPS MK III helicopter, Captor torpedoes, a variety of ASW platforms including towed arrays, SSN's and the like, all of which are modernized to insure that we stay up with the explosive technology we see the Soviet employing.

FORCE LEVELS

As far as force levels are concerned, we had a net increase of 21 ships in fiscal year 1982, bringing us to the current level of 512 that the Secretary mentioned. Impressive ships, U.S.S. *Carl Vinson*, two guided missile destroyers of the *Kidd* class, eight *Oliver*

Hazard Perry class frigates, (FFG), six *Los Angeles* class attack submarines, three missile-firing hydrofoil ships, one destroyer tender, two fleet oilers, two combat store ships and two Trident submarines.

We have retired five aging support ships and one Polaris SSBN. Seventeen new construction ships were authorized in fiscal year 1982 and 12 of the 17 authorized for fiscal year 1983 are now under contract.

Additionally, seven conversions and reactivations are underway. The *New Jersey* was commissioned early and within budget and the *Ticonderoga* with its Aegis system was commissioned in January. The *Saratoga* service life extension program (SLEP) was completed at Philadelphia on time and within budget and has now joined the fleet with modernized equipment on board.

In fiscal 1984 we will have a net gain of 18 ships, of which will be 17 new construction. We will also convert many others which are already in commissioned service. We also have the advance procurement funds for the DDG-51 which will replace the aging DDG-2 and DDG-37 classes.

AIRCRAFT PROCUREMENT

The Secretary mentioned aircraft procurement which has more than doubled since the initial fiscal year 1982 defense budget submission. We have 281 new aircraft in the 1984 budget today.

The Secretary mentioned the many management actions that we have taken. There are many additional aggressive actions we have taken within Navy not only to deal with the procurement accounts, but to deal with the execution of programs in the modernization and research and development accounts. I touch on this in my statement.

The Navy tomorrow continues a theme of readiness, sustainablility, modernization, and force level improvement to match the growing threat in keeping with the national strategy so as to achieve the necessary level of maritime supremacy by decade's end.

NATIONAL STRATEGY

I believe we do have a good national strategy. I believe the maritime strategy is coupled closely to it and I believe the members of the Joint Chiefs of Staff, Secretary of Defense, fleet commanders and service chiefs are coupled to the national strategy.

What we are doing is coupled to the national strategy and not uncoupled in some parochial service way. Certainly as a member of the Joint Chiefs of Staff, I feel very strongly that the leadership of the Joint Chiefs of Staff today and the harmony with in that group has been important in this regard we have worked closely with the Secretary of Defense to see that these programs are coupled together well and we feel very strongly that they are balanced across the board.

The Navy budget, at 2 percent nominal increase in real growth over fiscal year 1983 will enable us to strengthen the sea-based portion of our nuclear deterrent, procure Trident submarines, support modernizaiton of key elements of our battle forces, enable the carrier battle groups to operate wherever called upon, and employ the

Navy-Marine Corps amphibious team where needed. This latter concept is enhanced by the continued and important investment in sealift.

The budget will enable us to manage and sustain and maintain our forces while we build in consonance with national policy.

Finally, the resources you make available will enable us to continue our efforts to use technology to our advantage.

In summary then:

One, the maritime strategy and our 1984 request before you are coupled to national security objectives;

Two, our fighting readiness is the strongest I have seen in 20 years and getting stronger every day as we enhance sustainability by filling our bins with repair parts and weapons.

Strategic and conventional modernization and procurement, in my opinion, are in balance with the readiness and sustainability funding. We are taking aggressive management actions to become better stewards of the public funds.

We believe that we can demonstrate that stewardship and the examples that the Secretary gave were particularly pertinent.

The Navy budget for 1984 remains essentially intact. If this positive trend can be sustained, an acceptable maritime posture will be a reality.

Thank you, Mr. Chairman.

[The prepared statement of Admiral Watkins follows:]

PREPARED STATEMENT BY ADM. JAMES D. WATKINS, U.S. NAVY, CHIEF OF NAVAL OPERATIONS

Mr. Chairman, it is my privilege to appear before you today and report that we are moving forward in manning and building a Navy which will restore our maritime strength. Two years ago, the Chief of Naval Operations testified before you that the United States was "overexposed and underinsured." As he reported, the Navy was operating at "the ragged edge of adequacy when it comes to our globally disposed forces." That is not the case today. We have come a long way and we have a long way to go, but we are a Navy on the mend. We are attracting and retaining high quality people, increasing and modernizing our major weapons systems, and enhancing the readiness and sustainability of the battle force.

Our greatests resource is the absolutely superb team of men and women whose standards and goals epitomize all that is good and just in our society. They are well-trained, dedicated and loyal public servants who work tirelessly to develop and maintain the strength which will assure peace. Of course, they can achieve our common goals only with the full support of the Congress and the American people.

The steady course you have helped set to rebuild the Navy must be maintained. The Soviet military threat inexorably increases; they continue to build increasingly modern and more powerful naval forces. The Soviet Navy is clearly a "blue-water" force; they have to date launched 191 nuclear submarines, including 6 during the past year, and their sophisticated, missile-equipped forces can threaten allied naval forces on all the world's oceans. Morover, the recent South Atlantic conflict highlights the global spread of modern weapons. Highly lethal, advanced technology weapons present potential high threats virtually every place on the globe. We cannot afford to slacken the pace toward the goals we have set; the cost of failure would far exceed the cost of prudence.

Pressures on the economy and the federal budget have exacerbated debate on defense spending. Some, for example, are concerned that resources allotted to defense are unwarranted in view of other social needs, or are spent unwisely. Recognizing these legitimate concerns as I assumed the helm of the Navy, we have taken time, disassociating ourselves from programmatic-budget issues and day-to-day affairs, to reassess the Navy. We have attempted to measure its relevance to the coming century and to the threats we expect to face, not only as a Navy, but as a country. We have reviewed the vital links between broad national policy objectives, such as those formally issued by the President and Secretary of Defense, and military strategies which may be required in peace, crises and war, so that our maritime operations best support these strategies. We have carefully considered the essential level of resources necessary to meet the needs we can and must afford.

MARITIME POLICY

National security objectives

We have reaffirmed certain conclusions about the vital importance and significance of the Navy-Marine corps team to our national security and, at the same time, recognized new contributions that team can make. Our most fundamental national security goal is to preserve the United States as a free nation with our institutions and values intact. To this end, we must be able to deter attacks on ourselves or our allies and defeat such attacks should they occur. We must also be prepared to respond rapidly to crisis to prevent conflict or limit escalation. Moreover, the United States recognizes that access to key resources and protection of critical interests abroad are crucial to U.S. national security. We, of course, prepare to pursue these interests using a wide range of political, economic and military tools; and our ability to defend national interests and security objectives against military threats is the standard against which the nation's strategy and defense posture are measured. The Navy's objectives closely relate to overall national security goals as our maritime strategy supports national defense strategy.

Our highest priority is to deter nuclear war; nuclear deterrence is the cornerstone of U.S. national security posture. Without sufficient strategic nuclear deterrence, our military strategies are built on quicksand; enduring strategic nuclear forces and, perhaps most important, assured strategic connectivity across the spectrum of potential nuclear exchange are fundamental to ensure deterrence. No goal is more important to the nation, and the uniquely survivable submarine launched ballistic missile forces play a key role in maintaining nuclear deterrence. While strategic nuclear deterrence is absolutely essential, it is not sufficient to guarantee our security against the wide spectrum of potential threats we face.

The U.S. defense strategy described in the fiscal year 1984 Defense Report is a more robust military strategy which recognizes that capabilities at every level of conflict are important if we are to be able to control escalation and terminate conflict on our terms. Secretary Weinberger describes U.S. strategy as based on three pillars: a defensive posture; deterrence of war; and dedication to restoring peace on favorable terms should deterrence fail. Policies designed to support the defense strategy include heavy reliance on collective security, maintenance of forward deployed forces to support our alliances, and flexibility in the force structure to cope with a wide spectrum of threats. We want to affect enemy strategy and will: in peace to ensure stability and protect our interests without recourse to force; in crisis to contain or to resolve the dispute on our terms before crisis escalates to conflict; and in war to terminate conflict on our terms at the lowest possible level of damage and loss. These concepts are central to maritime strategy and shape the Navy's objectives, plans and force structure as well as its operations in peace, crisis and conflict.

The robust strategy which Secretary Weinberger describes must respond to conventional conflicts across a wide spectrum of possible threats—from local incidents to global encounters, and from momentary outbreaks to extended conflict. Moreover, we need to prepare seriously for national mobilization. If the U.S. is to respond effectively to a wide range of possible aggression, we must be capable of bringing the societal and industrial strength of the U.S. expeditiously to bear in any potential conflict.

Maritime strategy

In the increasingly threatening, unstable world we face, the United States' need to bring its influence to bear when and where necessary becomes even more acute. The Defense Report notes that if the United States is to buttress its collective security posture, we must ". . . maintain forward deployments. That, combined with the forces of our allies, provide the first line of conventional defense in Western Europe, Japan, and Korea." The "strategy of forward defense" depends, of course, on our ability to control the sea in areas and times of our choosing. As President Reagan recommissioned U.S.S *New Jersey,* he noted that "Maritime superiority for us is a necessity. We must be able in time of emergency to venture in harm's way, controlling air, surface, and sub-surface areas to assure access to all the oceans of the world. Failure to do so will leave the credibility of our conventional defense forces in doubt." Maritime superiority is not a requirement to dominate militarily or to match any adversary weapon for weapon; it, in fact, relies on a selective and sequential strategy which supports our "forward defense" concept. However, the United States, in Secretary Weinberger's words, "must be capable, and be seen as being capable, of preserving our access to areas vital to our national interests in a timely manner and in face of the most determined opposition." We must be able to carry the battle to the enemy and prevail, wherever necessary to protect our interests.

Critical security interests of the United States, including many major allies and strategic resources, are on the Eurasian land mass. The United States must be able to have influence there in peace, war and crisis, and the Navy plays a key role in guaranteeing access and supporting military operations in those vital theaters. General Vessey noted in his posture statement that "freedom of the seas is a key element of U.S. global strategy." We and our allies must be capable of maintaining maritime superiority to defend crucial national interests and meet global obligations.

To insure access to the Eurasian land mass and support military operations there, we require a strategy which will permit us to meet the threat under conditions advantageous to the United States and its allies. The strategy should threaten the potential adversary in his most secure areas, support and influence the land battle by either directly blunting attack or reinforcing allies under attack, and allow for the strategic flexibility to employ maritime forces at decisive points in the war. Our maritime strategy for global warfighting in the event of a major conflict with the Soviet Union and its allies is based on early offensive forward pressure designed to support and reinforce forward deployed U.S. ground and air forces, as well as our allies, in the Atlantic and Pacific. By confining and destroying air, surface, and subsurface threats to the transoceanic sea lanes well forward, we control the initiative and capitalize on geographical advantages, thereby maximizing the effectiveness of our forces. Forward defense also provides us flexibility to isolate enemy power, pressure their interior lines of communication, and prevent them from exerting the potential of their numerical advantage in maritime forces.

Further, it would be unwise to conclude that any maritime conflict with a global power such as the Soviet Union could be geographically confined and plan only for that occurrence. Soviet involvement is global, and in the event of war, they might well attempt to seek advantages in tempting targets outside Europe and beyond their borders. Similarly, we would not want to restrict our actions if there were advantages in operations in different theaters, or if we could not protect our interests in the area under attack. It is prudent to recognize that any conflict with the Soviets could be global in nature—at sea if not elsewhere.

To execute our maritime strategy, our forces must be, and be seen as being, offensively capable and strong. At the *New Jersey* commissioning, the President reaffirmed our intention to build "a 600-ship fleet including 15 carrier battle groups. But numbers are not the final test: these ships must be highly capable." The President's last point is extremely important because it is this qualitative advantage which gives us the chance to gain the upper hand over a quantitatively superior Soviet Navy. Based on peacetime commitments and wartime requirements, we have derived the need for a Navy of approximately 600 ships. A '600-ship Navy' means the capability derived from our strategic nuclear ballistic missile submarine force, 15 carrier battle groups, surface combatants, including battleship surface action groups, nuclear attack submarines (SSNs), land-based ASW maritime patrol aircraft, associated escorts and logistics support, mine warfare forces, and sufficient amphibious lift. It is not a precise ship count, but the total balanced capability derived from the forces which is important. A Navy with the capability described will enable us to maintain sufficient maritime strength to support our national defense strategy.

Our maritime strategy relies not only on U.S. naval forces, but also depends on the contributions of other U.S. air and land assets and the forces of our friends and allies. The Services are working hard towards greater inter-Service cooperation, with the crucial payoff of better using our forces as "combined arms." We must continue to prepare for the possibility of a global war, which will demand the Services coordinate and integrate their efforts. I fully and enthusiastically support the Chairman of the Joint Chiefs of Staff in his efforts to nurture inter-Service measures in an integrated air defense of NATO Europe, a balanced program for non-strategic nuclear forces, and the continued development of cross-Service interoperability in intelligence resources, mobility, and the cruise missile program.

In the fall of 1982 I signed agreements with the Chief of Staff of the Air Force which will increase our combined Navy-Air Force effectiveness in maritime operations and operations ashore. Air Force capabilities in warning, surveillance and targeting, command and control, minelaying, electronic warfare and in-flight refueling will contribute to our overall capacity to wage war at and from the sea. We also depend on contributions from our allies, such as their 140-plus diesel submarines which are well-versed in their local waters and best employed in executing special missions in those areas.

U.S. interests are global, and crises or confrontations rarely occur at a time or place of our choosing. One of the central supporting policies of U.S. military strategy is the maintenance of a "flexible force structure," which can provide a variety of options to the decision-maker. The Navy-Marine Corps team plays a central role in implementing this policy with our unique ability to respond immediately with forces sufficient to demonstrate presence, will, or actually to defend U.S. interests, as required.

The mobility, sustainability, and combat potential of naval forces are vitally important; the Navy can respond on short notice to crisis or conflict virtually around the globe. Naval forces offer a unique means to influence, or even prevent conflict—especially in areas where access is precluded or restricted in peacetime—because of their ability to deploy rapidly with logistics support independent of extensive foreign basing or overflight rights. Carrier battle groups supported by attack submarines, land-based aviation, and surveillance assets possess the combat capability necessary to operate successfully even in high threat areas. Naval forces manifest visible commitment to our allies and adversaries alike without setting foot on foreign soil. For these reasons, the U.S. Navy was used in more than four fifths of the international incidents requiring the projection or demonstration of U.S. military forces since 1946. Naval forces provide a key tool to express urgently and forcefully U.S. national will to foreign powers. This role makes the Navy very important when dealing with higher orders of international crises, particularly during early stages of combat which can determine the course of the conflict.

We continue to seek ways to improve the strategy and tactics which are crucial to improving our warfighting effectiveness—the key to prevailing against the Soviet Navy is to fight more intelligently and effectively. We must not only plan to defeat his forces, but also to defeat his strategy and his will to resist. The Naval War College is being revitalized as a crucible for strategic and tactial thinking to ensure that we will be able to "fight smart," if war comes. Our efforts in this area include developing a better understanding of the Soviet thought processes and inherent strengths and weaknesses in order to counter and exploit them. We are now rotating some of our most highly qualified officers to the War College immediately after they complete assignments as commanding officers of our operational ships and aircraft squadrons. Exposure of our finest, tactically proven professionals to strategic thinking at the Naval War College should provide a superb opportunity to test tactical and strategic thinking over a wide variety of applications. One clear payoff will be a cadre of tactically and strategically sound thinking commanders ready to move into key assignments ashore and subsequently at sea in more senior Battle Force roles. Moreover, by so doing, we will force more effective coupling between National Security, Defense, Unified Commanders, Service, Inter-Service, Allied and U.S. Naval Commander at-sea strategies and implementing plans so that we can be confident we are optimizing the powerful potential of combined arms. All of our major future war games will be played from a combined arms point of view, avoiding the pitfalls of parochial, Navy-only, war gaming which can be misleading and unrealistic.

To build on this initiative, we recently convened a strategy conference over a period of several days in which the four Navy Commanders-in-Chief (CINCs) and the most senior Navy leadership serving in Washington were able to discuss national strategy and our maritime strategy which flows from it. We, of course, had met in the past, but felt that formal recognition of these exchanges would emphasize and focus strategic thinking on the employment of naval forces if conflict were to occur. The results of that conference have helped establish the basis for organizing fiscal programming considerations to support the CINCs' employment plans. We will meet twice a year to ensure coordination and follow-up. I am reassured by progress in this area and am optimistic about the potential to improve and harmonize our strategic thinking while exploring every possible maritime contribution to our national objectives.

Employment of Naval Forces

United States maritime strategy is very much a live and dynamic set of principles, objectives and plans. I need not talk in vague theories to describe the Navy's role in support of U.S. policy. Our forces, both strategic nucler deterrence forces and conventional naval forces, are on station in proximate and distant waters. As an example, in the Far East, during the fall and early winter of 1982, the Navy participated in a series of complex unilateral and multi-national exercises involving Seventh Fleet Carrier Battle Groups, Surface Combatant Task Groups of cruisers and destroyers, submarines, land-based aircraft, and major amphibious units. Major operations took place in the Northwest Pacific Ocean, the Sea of Okhotsk, Sea of Japan, and East China Sea, and amphibious operations were conducted in the Aleutians, improving our cold-weather capabilities. Moreover, we continue to maintain a minimum of one carrier battle group in the Indian Ocean as well as a five-ship presence in the Arabian Gulf region with Commander, Middle East Force. At the same time, the Navy continued to provide drug interdiction support of Coast Guard operations in the Caribbean, and maintained a constant presence in waters adjacent to Central America.

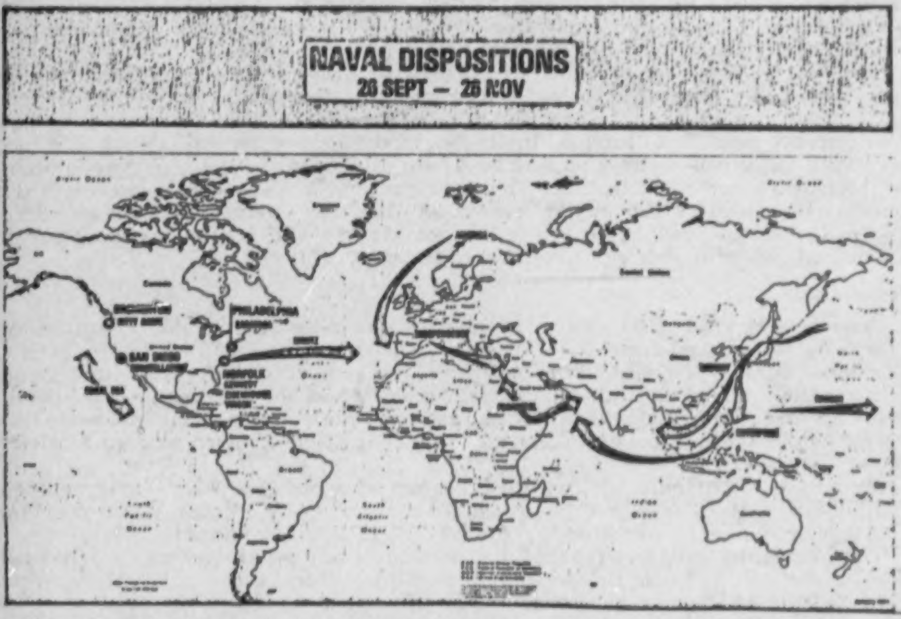


Figure 1: Eight of our fourteen carriers at sea in support of U.S. Policy. INDEPENDENCE was returned to Eastern Med to support reinsertion of Marines into Lebanon. AMERICA diverted to the Med to assist for about 2 weeks. FORRESTAL transits the Suez Canal to relieve AMERICA, MIDWAY, then ENTERPRISE relieves FORRESTAL, RANGER returns from major deployment, NIMITZ deploys to the Med via Caribbean operations, and CORAL SEA assumes ready carrier in the eastern Pacific.

If I may, I would like to describe the Navy's response to the crisis in Lebanon in a little more detail, perhaps to place the importance of mobility and flexibility in better perspective. During a two-month period from late September to late November 1982, we responded on extremely short notice to assist with follow-up USMC operations in Lebanon after the evacuation of the PLO from Beirut. Ships of the Sixth Fleet remain there on station today, with carrier and amphibious forces ready to conduct contingency operations on a moment's notice. As you can see in Figure 1, our global commitments demanded that we adjust the movements of carrier battle groups in every ocean of the world to answer the need in Lebanon while fulfilling all other international obligations. This flexibility did not come easily. We were forced to modify deployments of seven carriers to place two carriers off the coast of Lebanon. While the unparalleled mobility of our carrier battle groups was vividly demonstrated during the Lebanon crisis, we sometimes forget that there is little give in the demanding schedules of the carriers and all their supporting forces. They, and the thousands of sailors serving in them, continue to be deployed an average of five months per year to meet our national needs. Yet, this dynamic employment with eight of our carrier battle groups deployed is more typical than the static picture generated by simple numerics of the four carrier battle groups on station in a forward deployed status, too often used by analysts here in Washington. Additionally, these unanticipated tasks are often not reflected in our budgets and impact on readiness and other training. The opportunity costs of lost training alone can be substantial, and unbudgeted costs also impair our ability to absorb unprogramed requirements.

I hope I have made the point that the United States does have a strategy, a very comprehensive and considered strategy, one which recognizes the vital interests of the nation and the serious military threat we face. The Navy's maritime strategy supports our national objectives, and your Navy is on station today, protecting our interests around the globe. And, I might add, they are doing a fine job.

THE NAVY TODAY

In 1981 the CNO cautioned that without an increase in budget resources, we would see perpetuation of a downward spiral toward maritime inferiority. I can report very positively on the current state of the Navy because of the favorable trends developed with your support. As I said earlier, the Navy is on the mend, but we must persist in our efforts if we are to maintain the pace which will enable us to regain the necessary maritime strength by the end of the decade.

The Navy's readiness to fight is measured in three distinctly different time dimensions: today, within ten years, and beyond this decade into the turn of the century. In putting together the program to rebuild the Navy, it is necessary to balance and improve readiness through funding of modernization, sustainability and force structure initiatives because each is an essential element in the U.S. Navy's ability to fight at a given point in time. This year's budget is an integral element in that plan; paying salaries and buying bullets for this year's readiness, procuring ships that will maintain naval strength in the next decade, and funding research and development that will assure our security in the next century.

Readiness

Readiness is vital if we are to be able to maximize the capabilities in today's Navy. As we learned from the British experience in the South Atlantic, even in "modern" combat the vintage of platforms and combat systems is of little importance without attention to their material condition and the training level of the officers and men. These elements allow us to extract maximum combat capability from current forces, while looking ahead to the introduction of more modern platforms and systems.

Personnel.—Two years ago, we were concerned about the Navy's low readiness, mainly due to the shortage of mid-grade officers and petty officers. While personnel shortages remain, the personnel picture has brightened considerably.

The Recruiting Program reached 100 percent of our projected goal, in large part due to efforts to upgrade the perception of military service through both word and deed—efforts which have been enormously effective and needed. However, we would be naive if we did not also recognize that the health of the economy and, specifically unemployment, have helped our recruiting effort. Despite our recruiting successes, they alone will not end the personnel shortfalls.

The Navy expended a great deal of effort over the past year to reduce the loss of highly skilled officers and petty officers who have been trained and educated in the Navy at great expense and represent an almost irreplaceable measure of experience. Although retention of experienced technical personnel continues to be our most serious personnel readiness shortcoming, we have made significant progress with retention, as indicated in Table 1, due primarily to compensation initiatives such as Sea Pay, Aviation Officer Continuation Pay, and the Selective Reenlistment Bonus Program.

TABLE 1.—RETENTION IMPROVEMENTS

[In percent]

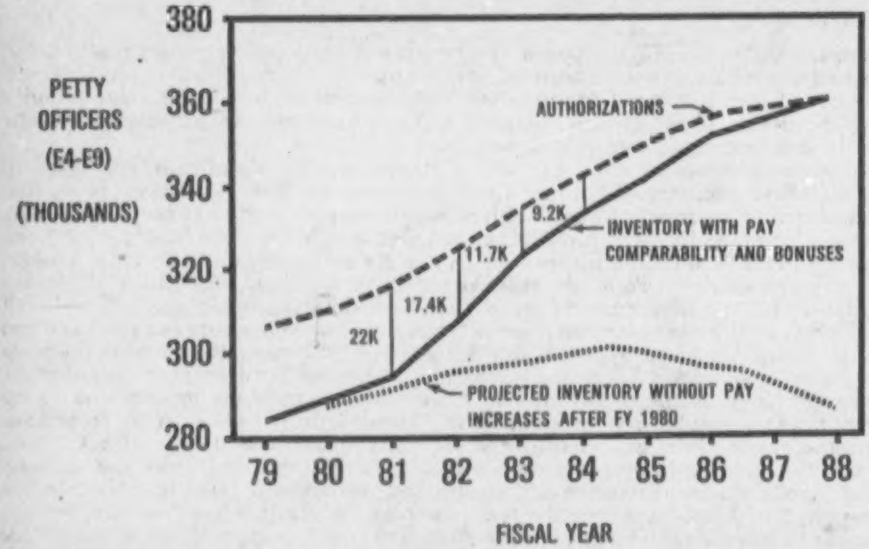
	Fiscal year—	
	1981	1982
Officers:		
Surface warfare	42	43
Pilot	42	49
Naval flight officer	65	73
Nuclear submarine	33	39
Enlisted:		
First term	42	50
Second term	57	63
Third term/career	94	95

It is important to recognize that the widely reported petty officer shortfalls are a quality, rather than a quantity issue. We may even be able to recruit sufficient first termers to exceed requirements; but if we do not retain an adequate percentage of those recruits, we will still be short of the second-term and career petty officers who provide the technical expertise and enlisted leadership of the Navy. The retention issue becomes even more important as we rebuild our strength and require commensurate personnel increases. Figure 2 demonstrates how current shortfalls will be eliminated with continued national support and pay comparability.

Factors contributing to retention and recruiting improvements do not lend themselves to simple analysis. One major factor was the 14.3 percent pay raise in fiscal year 1982 in addition to the 11.7 percent pay raise in fiscal year 1981. The Selective Reenlistment Bonus (SRB) program, a critical element in our enlisted retention efforts, was adequately funded in both fiscal year 1981 and fiscal year 1982 and greatly contributed to retention efforts. However, adequate funding must be continued to maintain retention momentum. I will return to this issue during my statement.

PETTY OFFICERS FOR 600-SHIP NAVY

DECLINING MANPOWER POOL REQUIRES EMPHASIS ON RETENTION:
RETENTION = NATIONAL SUPPORT + COMPARABILITY PAY (INCLUDING BONUSES)



Simply recruiting and retaining people does not mold them into a team. The unequalled professionalism of the Navy's men and women reflects our renewed emphasis on traditional leadership and standards of military discipline. The Navy's war on substance abuse has provided dramatic results, and we shall continue to emphasize the highest standards of personal conduct. I reject the premise that the Navy can only reflect societal standards, and I am very proud of the moral leadership of the Navy in our society. The pride that our sailors have in themselves, their uniforms, and their personal and moral standards contribute directly to the readiness and effectiveness of the Navy Team.

Training is another critical readiness area and requirements for highly trained and capable personnel to operate and maintain our equipment becomes increasingly important as the levels of equipment sophistication grow. Underscoring the importance we place on training, the Commander, Naval Education and Training Command was restored to a three-star billet in the past month with the additional authorization allowed by the 1983 Defense Authorization Act.

Material.—Material readiness can be described in terms of the weapons systems, combat-essential equipment and material available as compared to requirements set for a particular misssion, or in terms of that portion of the inventory which is capable of executing any or all misssions assigned. Spare parts support and repair funding are often important determinants of such indicators as percentage of aircraft and ships reporting fully combat ready, or mission capable, training and morale are also contributors to readiness. There is also some delay in realizing the impact of spending as it takes time for contracts to be let and orders to reach the operating forces.

Nevertheless, the Navy increased its spares procurement account by nearly 50 percent from fiscal year 1981 to fiscal year 1983, and we are beginning to see results; key readiness indicators have risen significantly since late 1981, and are continuing to rise. As an example, the ships reporting not ready for combat because of personnel shortages dropped from nearly twenty in early 1981 to zero last month. In fact, numbers of ships not in overhaul increased their readiness from 80 percent to 90 percent and aviation squadrons from 65 percent to 85 percent over calendar years 1981 and 1982. We are also making excellent progress in improving both quality and on-time completion in our depot overhaul programs. In private sector overhauls, ships finished an average of only 2 days late in 1982 as compared to an average of 21 days late in 1981.

The positive readiness trend is unmistakable. Congressional support for compensation initiatives and improved funding of material readiness has led to highly qualified personnel with sufficient tools and parts to do the job, which, in turn, generates increased readiness.

Sustainability

Sustainability is the staying power of our forces—while not very exciting to budgeteers and the media, it's a measure of how long we will fight effectively in protracted combat at sea. Increased funding and closer attention to combat sustainability during the design phase of new weapons systems have also begun to improve our ability to stay in combat over longer periods.

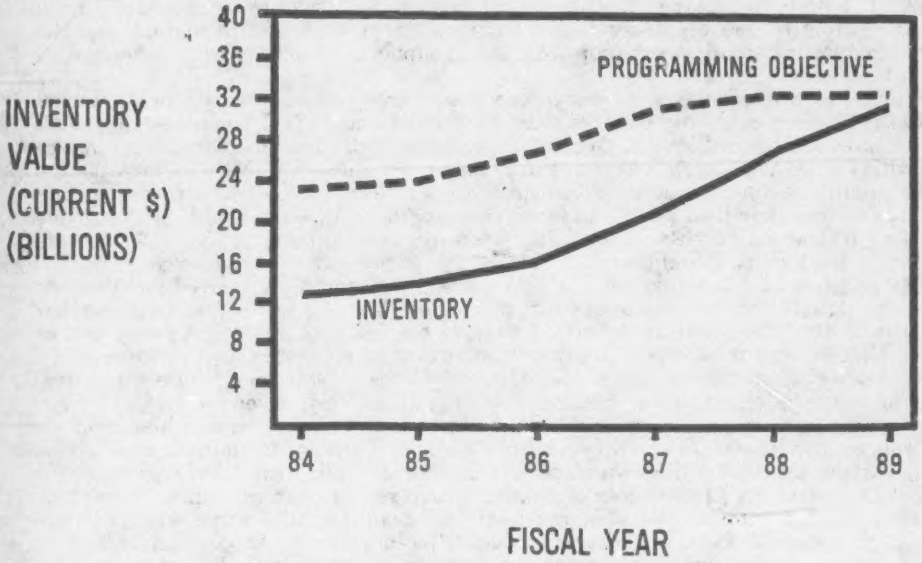
Despite improvements in sustainability, there remain significant shortages of spare parts and ordnance, degrading our overall posture. These shortages, generated by budget-driven, narrowly focused, non-global defense strategies of the past decade, have been long standing and have had a cumulative effect on our inventories. Even though we are now building inventories as rapidly as budget and effective management of procurement permit, we still do not have sufficient quantities of certain ordnance to fill the magazines of all of our ships simultaneously and will still not have enough in the near term because of the nearly two years between contract and delivery. But if Congress approves our fiscal year 1984 requests, we will take another major step toward adequate sustainability by the latter part of this decade.

However, Navy ordnance inventories have shown significant growth due to increased funding emphasis—particularly in "threat" ordnance, such as torpedoes, surface-to-air, air-to-air, and cruise missiles, both anti-ship and land attack. From 1974 to 1980, funding in real buying power was essentially level. Over the succeeding four years, annual investment doubled; and resources applied to ordnance are programmed to double again in the five-year plan. While shortages remain, we are beginning to increase the length of time the Navy could conduct a war at sea before ordnance supplies are exhausted. Figure 3 depicts progress being made in this vitally important area.

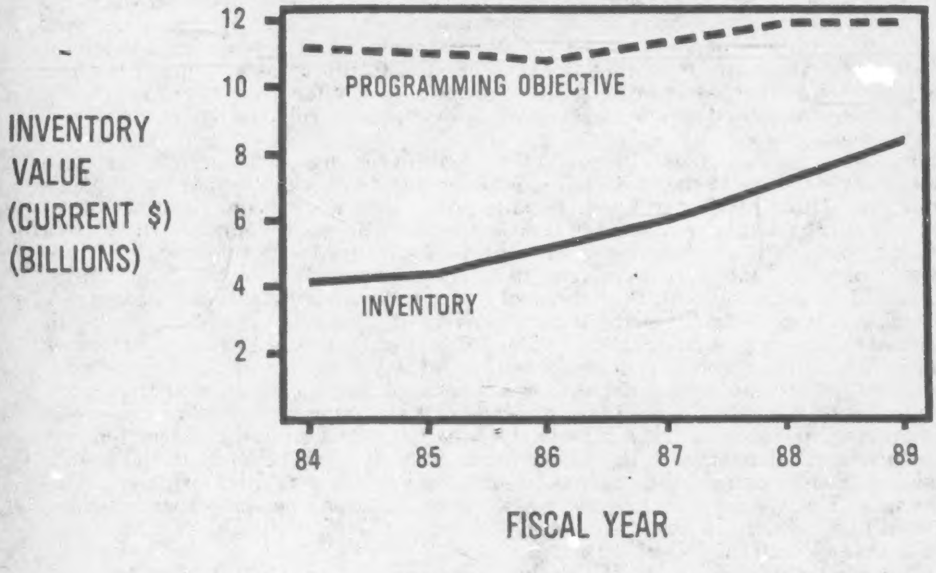
Current funding for procurement and repair of spare aircraft parts is insufficient to achieve the Navy's aviation mission capability goal of 70 percent in the very near term (the mission capability rate is the percent of aircraft which are operationally ready to perform in at least one of their primary missions). The actual rate for fiscal year 1982 averaged about 62 percent and is forecast to average 63 percent in fiscal year 1983 and 65 percent in fiscal year 1984. An important contribution in this area is the introduction of very maintainable aircraft like the F/A-18 which will reduce the required parts to support a carrier air wing and peculiar ground support equipment requirements.

Part of the Navy's role is to assure the United States can support mobility needs and sustain a forward defense. Sealift is the fastest growing portion of the Navy program; we spent twice as much in fiscal year 1981 and fiscal year 1982 as had been spent over all of the 35 years since World War II. We are upgrading sealift capabilities and coordinating with the other Services to facilitate offloading in austere ports or over the beach. We have begun to increase our sealift capability, and present programs will support a significant increase in the Ready Reserve Force, a force of dry cargo ships ready to sail within 5 or 10 days of call-up.

WARFIGHTING CAPABILITY AGAINST AIRCRAFT, SURFACE SHIPS AND SUBMARINES



WARFIGHTING CAPABILITY AGAINST TARGETS ASHORE



Reserve forces will also play a key role in our sustainability in combat, and I am determined that we place more emphasis on the integration of the Reserve into our operational forces. Reserve units are bing enhanced to provide rapid mobilization and augmentation. We are striving to integrate the Reserve so that they will be able to augment active forces on an individual or unit basis. We are making excellent progress through skill improvement programs which will increase training levels for the reserve augmentation force. Most importantly, ongoing programs to put modern hardware, ships and aircraft into the Reserve and develop an enhanced and fully integrated Reserve repair capability at the intermediate maintenance activity level are beginning to pay great dividends. I am confident that we are making the Reserve component significantly more capable to support our active forces when called upon to do so.

Four modern frigates have already been transferred from the active forces as part of the plan to upgrade the Reserve with 1052-class and FFG-7 frigates. Additionally, we have established several Reserve-augmented Shore Intermediate Maintenance Activities (SIMAs)/Naval Reserve Maintenance Facilities (NRMF) to provide the same quality maintenance and modernization priorities for the Reserve Force combatants as for other fleet assets. In fact, these upgraded Reserve SIMAs may provide services to the active fleet, alleviating pressures on manning active intermediate maintenance facilities, and thereby contributing to present fleet readiness.

Our progress in rebuilding the nation's maritime strength has caused us to review the base structure necessary to support a growing fleet. As we increase the number of ships in the Navy, we cannot afford to have too many of our eggs in only two or three baskets, and it becomes even more important to promote growth in the industrial base required for combat repair of naval forces in wartime. While concentration of forces is clearly cost effective from a military effectiveness point of view, overloading our primary bases could cause unnecessary congestion and inefficiencies as well as heightened fleet vulnerability. We are therefore examining a strategic homeporting concept which would permit us to rationalize the base structure, for example, co-locating all elements of a battle group rather than all ships of one class. Many critical aspects of the plan must still be examined and some additional expenses may be involved, but the plan does offer a framework for introduction of future ships into the fleet over an extended period. No request for basing infrastructure funds designed to implement this concept has been requested this year. You can be assured that the Congress will be consulted as our thinking progresses.

Modernization

Modernization provides the fleet a capability to meet both current and future threats. This is a particularly critical area for the Navy because of the exceptional length of time our ships and aircraft remain in the fleet. Indeed, over half the ships which will be the active Navy inventory at the turn of the century are either now in the water or on a builder's ways. The Navy's modernization program is balanced between near-term improvements and protection of future options. Some of our primary objectives include improving the distribution of offensive power, expanding fleet battle space, and developing robust command, control, and communications (C^3) systems.

I believe it is particularly important to continue efforts to modernize our ordnance. The lethality of the 'payload' must keep pace with or exceed the sophistication of launching platforms. Much remains to be done in this long-neglected area, but we are introducing weaponry in the fleet which will greatly enhance the Navy's striking power. The Harpoon program continues scheduled expansion, with 222 additional missiles funded in fiscal year 1983. Harpoons are now installed on submarines, surface ships, and attack and patrol aircraft, distributing anti-surface capability and extending lethality across a wide variety of platforms. The Tomahawk will also make a major contribution, extending our standoff capability to land attack as well as anti-surface roles. Tomahawk will be deployed on a wide variety of platforms, with first operational deployments scheduled on *New Jersey* and the attack submarine *Guitarro* this year. These weapons will also be incorporated on other surface ships in armored box launchers in the near term, and on new construction surface ships and submarines in the new Vertical Launch Systems (VLS), in the future, enabling them to carry a wide variety of missiles which can be fired virtually simultaneously. The system will increase magazine capacity and decrease reaction time. VLS will be installed in new construction SSN-688, CG-47, and DDG-51 class ships, and backfitted into the DD-963 class.

We continue modernization of the fleet's anti-air warfare (AAW) capacity in all phases of the Navy's defense-in-depth concept. E2-Cs providing early warning, combined with EA-6B jamming and fighter interceptors constitute the outer defenses.

The Phoenix missile is being provided to the fleet in greater numbers, helping to upgrade our outer defenses. Standard missiles on our AAW surface ships are strengthening the area defense zone, and NATO Sea Sparrow and the Vulcan Phalanx close-in-weapon-system (CIWS) are modernizing our point defenses. 122 units of Vulcan Phalanx have now been installed on 65 ships, and new electronic jamming and decoy devcies also enhance the fleet's AAW capabilities.

As pointed out in Secretary Weinberger's Defense Report, increased anti-submarine warfare (ASW) capability is a major Navy objective. We also pursue ASW through a defense-in-depth strategy, and are modernizing our long-range surveillance through deployment of the TAGOS Surveillance Towed-Array Sonar System (SURTASS). SURTASS ships under construction will begin operations in late 1984, complementing fixed surveillance systems. The six P-3 aircraft authorized in fiscal year 1983 with the upgraded UPDATE III configuration and the Advanced Signal Processor, coupled with the introduction of the LAMPS MK III (SH-60B) ASW helicopter system reflect the defense in depth concept by providing both long range and close-in ASW air support for our forces. In addition, development of the Advanced Capability (ADCAP) modification, which provides roughly a 2-to-1 improvement in kill capability, for the submarine launched MK-48 torpedo, is proceeding on schedule. The newest version of the air and surface launched MK-46 ASW torpedo, the Neartip, with the longer range, increased-depth and improved kill probability necessary to meet the current Soviet threat, is being procured in quantity.

We recognize the need to complement systems and weapons improvements with an enhanced ability to extend surveillance and intelligence capabilities, coupled with an ability to manage and distill data we gather into useful information for operational commanders. Information management is crucial in winning the war at all levels, and modernization of our capabilities in this area is of highest priority.

The Integrated Tactical Surveillance System (ITSS) provides a structure to combine a variety of systems in order to provide coherent, near real-time, world-wide locating and targeting. The capabilities inherent in ITSS will prove critical in providing our various weapons systems a greater opportunity to engage the enemy in favorable circumstances through expansion of the fleet's battle space and better coordination of all available information to the commander. In the case of battle group commanders, this data will be displayed utilizing local command and control systems similar to the new Tactical Flag Command Center (TFCC), now being installed in U.S.S. *America*.

Survivable, enduring strategic command, control, communications and intelligence are absolutely essential to nuclear deterrence. We are upgrading our ability to communicate with the most enduring leg of the strategic triad, our strategic nuclear submarine force, with the Extremely Low Frequency (ELF) Communications System in Wisconsin. We also are making substantial progress in the program to replace the extremely important Tacamo (ECX) airborne strategic communications aircraft and are continuing development of the EHF (MILSTAR) program to provide essential wartime survivable, secure anti-jam, low probability of intercept communications.

The basis for continued modernization lies in a healthy research and development program, and in order to take full advantage of R&D initiatives, we must select technologies which will provide the highest payoff and leverage for our combat capability. Management of R&D involves determining the essentiality of leading-edge or high-level technology, and recognizing opportunities to use current and less expensive technology. Incorporation of new technologies which exploit enemy vulnerabilities and increase our own lethality will enable us to build a more ready, modern and offensive Navy, capable of destroying enemy ship, submarine, and aircraft firing platforms before they launch their weapons.

The Navy's research and development effort is funded at $6.1 billion in fiscal year 1983, of which approximately $824 million is in the science and technology base program. The Navy is participating actively with the other Services in microelectronics, directed energy and carbon/carbon and metal-matrix composites and fiber optics research as well as the Advanced Cruise Missile Technology program. Laser technology is another area of interest, including the Submarine Laser Communications program. We have also made significant strides in advanced hull and airframe designs which will be reflected in new weapons systems.

FORCE LEVELS

As planned, the net increase of battle forces joining the fleet in fiscal year 1982 was 21 ships (a summary of our current battle forces is at the end of this statement). The Navy commissioned a new nuclear carrier, U.S.S. *Vinson*, two *Kidd*-class guided missile destroyers (DDG), eight *Oliver Hazard Perry*-class frigates (FFG), six *Los Angeles*-class attack submarines (SSN), three *PEGASUS*-class hydrofoils (PHM), one *Yellowstone*-class tender (AD), two *Cimarron*-class oilers (AO), two combat stores ships (TAFS), and added significantly to our strategic nuclear deterrent with two *Ohio*-class nuclear ballistic missile submarines (SSBN). *Vinson* and her air wing will provide the core of another CVBG while the *Kidd*-class DDGs enable us to fill out more battle group escorts for key carrier forces. The FFGs move toward meeting our wartime anti-submarine warfare (ASW) escort force objectives for military shipping, underway replenishment groups (URGs), and aphibious forces. The SSNs, with their enormous combat potential, add significantly to the ASW and anti-surfact warfare (ASUW) capabilities of the fleet. The auxiliary ships provide the lifelines necessary to support combat forces operating under our forward deployed maritime strategy. The PHMs add a unique capability in the increasingly important Caribbean basin, freeing up other naval assets for employment elsewhere. Our first two Trident submarines, U.S.S. *Ohio* and U.S.S. *Michigan*, met or exceeded all design specifications, especially in speed and quietness. These new Trident submarines greatly strengthen our SSBN force by virtue of their quietness and longer-range missile systems which expand their likely operating areas while making detection much more difficult. Increased Trident survivability will provide a wide hedge against any possible Soviet ASW advance.

Against 27 gains, six ships were removed from active service: five older ships were decommissioned and one Polaris SSBN/SSN is in a naval shipyard for dismantlement to adhere to the SALT agreement will thereafter be decommissioned.

In addition to new units joining the fleet last year, the fiscal year 1982 Budget authorized 17 new construction ships and seven conversions and reactivations for procurement. All of these fiscal year 1982 ships and 12 of 17 ships authorized in fiscal year 1983 are now under contract. New ships included: two *Los Angeles*-class SSNs, three CG-47 *Ticonderoga*-class guided missile cruisers, one amphibious warfare ship (LSD), three *Perry*-class FFGs, one mine counter-measures ship (MCM), one oiler (TAO), four ocean surveillance ships (TAGOS), and two salvage ships (ARS). The conversions were two combat stores ships and four Takrx (SL-7s); the latter will become roll-on roll-off (RO-RO) ships. The one reactivation was the battleship *New Jersey*, which was commissioned on time and within budget. U.S.S. *Ticonderoga*, commissioned last month, is the first of a class which will bring into the fleet the most capable anti-air warfare system—AEGIS—ever designed. Its unique AAW capability provides a new era of air defense for the fleet.

In addition to these procurements, U.S.S. *Saratoga* will complete her Carrier Service Life Extension Program (SLEP) and return to fleet operations this February. As you know, SLEP will provide modernized carriers to the fleet, extend and expand on our carrier's usefulness and do this at a fraction of the cost of building a new carrier. This carrier modernization program is designed to maintain a viable carrier force well into the next century. U.S.S. *Forrestal* just entered her SLEP in Philadelphia Naval Shipyard.

We procure aircraft each year to replace those lost through attrition, to maintain the age of the force, to modernize and enhance our warfighting capability and, finally, to support the force structure increase. While we have made significant strides in aviation safety, we still absorb some losses and there is no way to stop the aging process: our calculations indicate that approximately 330 aircraft per year are required to maintain the age of the force. Aircraft procurement was originally programed at 121 aircraft in 1982, but the present Administration requested and Congress approved the fiscal year 1982 budget amendment, increasing the buy to 287 aircraft and permitting significant improvements in sea-based attack and anti-submarine capability as well as increased training assets.

In particular, the continued procurement of the F-14, the world's finest long-range interceptor with its unexcelled multiple-shot Phoenix capability, will ensure continued ability to operate in high-threat areas. The introduction of the F/A-18 continues a trend to modernize our fighter-attack force while simultaneously increasing the air superiority capability of the fleet. The aircraft procurement has been very carefully planned and integrated into the overall force structure modernization plans. The new tactical aircraft being delivered will be matched with new construction and SLEP carriers which are configured to support the modern air wings. Slips in programed aircraft procurement would impact the entire schedule for rebuilding and modernizing the fleet.

MANAGEMENT

In addition to modernizing and rebuilding the fleet, the Navy is working very hard at improving our management policies and procedures. We recognize the immense responsibility to manage effectively the national resources entrusted to the Navy if the nation is to have adequate defense at affordabe cost. We are participating fully in several of the important management initiatives which OSD has started or supported, including the revised PPBS process, limitations on new starts, multiyear contracting, programs to improve cost estimates, and the Preplanned Product Improvement (P^3) program. In addition, we have undertaken or proposed several management actions, recognizing that we must be cost conscious in the way we buy and maintain the Navy if we are not to jeopardize our future force structure. We have adopted a series of cost management measures which will ensure that we bring policy assumptions regarding cost to the appropriate level, raise cost issues in any engineering or block changes, and establish a program to implement continuing cost control.

We are realizing almost $200 million in savings from three major multi-year procurement contracts authorized in 1982 and 1983, and anticipate about $486 million in savings from the six programs we will propose for multi-year procurement in the 1984 budget. We awarded the long-term contract to construct CVN 72 and 73 in December 1982, saving an estimated $750 million in addition to providing 58 additional ship months (including 14 months on CVN-71) through production efficiencies obtained in the multi-ship buy. In addition, the Navy's contracting out (CA) program has gained momentum, indicating its savings potential. A cold storage function at one of our naval supply centers was recently contracted out at 60 percent of civil service cost. At a west coast naval shipyard, contract bus drivers cost one-fifth of a comparable civil service operation. These examples illustrate the potential savings through careful and conscious management and are the type of actions which are key ingredients of the overall program I described earlier to reduce costs in the Navy.

Translation of our maritime strategy into hardware at the most reasonable cost demands that we exploit our unique technological advantages. This does not necessarily mean that our weapons and platforms need to be more sophisticated, complex, and costly. Indeed, technology has provided mankind the means to achieve certain desirable ends more easily and simply. We should be innovative in applying technology: opportunities to improve the accuracy, increase the lethality, and lower the observability of weapons could greatly improve our conventional capabilities. We must ensure that we do not misuse the technologies available to us through constant awareness of our weapons requirements and technical goals.

In this effort to manage cost reduction and technological complexity in the Navy, I believe that cost discipline and cost technology issues may hold particular potential. Cost discipline includes weapon system configuration control, independent cost estimating, e.g., second sourcing, contracting out and utilization of man-day/dollar productivity competition among public yards and Navy repair facilities performing similar types of work. Cost technology emphasizes cost as a criteria in design, operation, and sparing a weapon system.

We recognize the importance of improving our management practices in the Navy, and we appreciate the fact that we still have room for improvement. I believe we understood the problem, and have begun to make substantial progress in this area.

With your support we are building a sturdier, more ready Navy, but we still face many challenges. Admiral Long captured the essence of our posture when he reported that his Pacific commands "have made meaningful progress in increasing sustainability and our efforts are pointed in the right direction; however, we continue to face serious shortcomings in logistic readiness to support potential combat scenarios." This year's budget request is designed to continue the effort to fill the Navy's shortfalls while modernizing the fleet and increasing our ability to support both near-term and future national defense strategy.

THE NAVY'S BUDGET

The Continuing Resolution containing the fiscal year 1983 Appropriations Act authorized many of the improvements planned for fiscal year 1983, including procurement of two nuclear carriers and 272 aircraft. However, the $74.9 billion TOA appropriated for the Navy was $5.6 billion less than requested and required deleting one of two Trident SSBNs, slipping the reactivation of the battleship *Missouri*, and postponing the construction of three of the four mine countermeasures ships requested. Authority to pay SRB extended only to the end of March 1983. We did sustain positive momentum with the fiscal year 1983 Defense Budget, but if we are to reach the maritime strength necessary to execute our strategy in support of national security objectives, the fiscal year 1984 Budget must maintain the positive trend.

We are requesting $79.7 billion in Total Obligation Authority (TOA) for fiscal year 1984. Nearly half of the Navy TOA is essentially fixed; we have little flexibility to restructure our strategic program, and over one-third of our TOA pays for overhead—the cost of doing business. Over half of the request supports readiness, providing the personnel, material, and training to conduct prompt combat operations. The remainder provides the wherewithal for sustained operations and the systems with which to fight. I will describe, in general terms, what the budget request provides, why it supports our strategy, and where we hope to advance with your support.

The budget will enable us to strengthen the sea-based portion of our nuclear deterrent, procuring the Trident submarine and developing the D-5 missile. It also supports modernization of key elements of our battle forces, enabling the carrier battle groups with their supporting forces to operate wherever called upon, including employment of the Navy-Marine Corps amphibious team. The budget will enable us to man, sustain, and maintain our forces while rebuilding in consonance with national policy. Finally, the resources you make available will enable us to continue our efforts to use technology to our advantage.

Fiscal year 1984 readiness

Personnel.—To man our new ships and squadrons and improve manning levels in fleet units, the fiscal year 1984 budget request increases Navy active duty manpower end strength by 11,900, to a total of approximately 582,500. It also increases active duty training and administration of the Reserves (TAR) and strength to nearly 14,000. The Navy's Selected Reserve end strength is budgeted to increase by 11,400 up to 105,150. A large portion of the Reserve growth will result from an additional 8,000 non-prior-Service accession in fiscal year 1984. We intend to continue this increase in accession through fiscal year 1987 to raise the number of Selected Reservists from the current 94,000 to over 124,000 by the end of fiscal year 1987. The campaign will emphasize recruiting the skills necessary to match mobilization requirements.

Compensation initiatives have demonstrated to our Service members that you in the Congress recognize the value of their contributions and sacrifices. However, there are still serious manpower problems and we cannot become complacent or reduce our efforts. Despite the excellent retention progress this past year, there was still a total petty officer shortfall of 17,400 for E-4 through E-9 at the end of fiscal year 1982, reflecting poor retention in earlier years. Although we are making considerable improvement over fiscal year 1981's shortfall of 22,000 petty officers, this shortage still translates into a lack of experienced and technically trained sailors both to do the needed technical work and to train more junior personnel. To rectify these shortfalls, our strategy for manning the Navy must be based on both retaining and recruiting.

We estimate the Selective Reenlistment Bonus (SRB) will save at least $400 million over the next five years by retaining already trained personnel rather than paying for training of new accessions. While the necessary legislative authority for SRB has been provided until March 31, 1983, I urge your early support for extending this authority through fiscal year 1983 and for fiscal year 1984 as well, to avoid the negative impact which program suspensions will have on personnel retention.

Comparability of pay and funding of bonuses are crucial and pressing issues which require your continued support if we are to keep retention at current levels and continue to build manpower levels to meet the requirements of a growing Navy. With the necessity to freeze military pay in fiscal year 1984, it is even more important that supplementary compensation issues such as bonuses, commissaries, health care and retirement are fully supported in the Congress.

Material.—In material readiness, the fiscal year 1984 budget provides for 49 overhauls, the smallest Navy ship overhaul program in many years. This is largely because of the effect of phased maintenance on Mobile Logistics Support Ships and the extension of the operating cycle on DDG-2 and FF-1040 class ships. The backlog of overdue overhauls is 13 ships, and 11 are due to conflicts with operational commitments. As I have noted, we are devoting considerable attention to improving the execution of our depot overhaul programs and will continue our efforts in this area. Special funds have been allotted for aviation component repair which will improve the performance of our Naval Air Rework Facilities while bolstering their ability to respond to a wartime surge. Reducing overhaul costs and length is one of my highest priority initiatives, and I assure you we will press on to continue these improvements with your support.

FISCAL YEAR 1984 SUSTAINABILITY

We will make headway in various sustainability programs to provide additional sealift for Southwest Asia and other contingencies. Work has begun on the conversion of the four high-speed SL-7 ships for the TAKRX program, and four more SL-7 conversions are requested in the fiscal year 1984 program.

The U.S. Merchant Marine provides an invaluable supplement to our warfighting posture and sealift capability. The Merchant Marine is a national industry whose revitalization should be considered an important national priority. While we are making progress in sealift, the U.S. Merchant Marine has decreased from more than 5,000 merchant ships during World War II to less than 600 ships, which severely limits our flexibility. We remain concerned about the state of the Merchant Marine industry and the weakness of this leg of our maritime strength. I strongly support its revitalization, and view the expansion of the U.S. Flag Fleet as a vital long-term investment in our national defense.

Despite recent improvements, there is a significant shortage of spare parts and ordnance throughout the Navy, which degrades our overall posture. Procurement shortfalls have been long standing and have had a cumulative effect on our inventories. We are building inventories of our major weapons, as the budget and effective management of procurement permit. But these procurements do not fill our requirements quickly enough to eliminate the need for some cross-decking (the practice of offloading items from one ship completing operations to another commencing operations), because there are insufficient quantities of ordnance to fill the magazines of all of our ships simultaneously. Modest increases of certain critical munitions are fully funded. The fiscal year 1984 budget and Five-Year Plan continue initiatives that began this fiscal year to bolster combat sustainability through increased stock levels. A substantial increase in PHOENIX missile procurement will enhance our air-to-air capability. It will take steady growth each year to attain necessary inventory levels by the end of the decade.

As I noted previously, current funding for procurement and repair of space aircraft parts is insufficient to achieve the aviation mission capability goal of 70 percent in the very near term. However, our current and future programs will increase the mission capability rate to 70 percent in fiscal year 1985, provided they are approved in full.

The fiscal year 1984 budget strongly supports the increased emphasis we are placing on providing the Naval Reserve Force (NRF) with modern, state-of-the-art equipment. Programmed replacement of aging C-118s with leased DC-9s will continue. The first three FFG-7s will be transferred into the NRF to join the six *Knox*-class frigates (FF-1052) that were provided in fiscal year 1982 and fiscal year 1983. Our most modern AEW aircraft, the E-2C, will begin replacing the E-2Bs in the Reserve, the first LAMPS HSL Reserve Squadron will be formed, and our newest F/A-18 aircraft will be integrated into both the Reserve and active forces.

FISCAL YEAR 1984 MODERNIZATION

The fiscal year 1984 budget contains provisions for continued modernization of our forces, most notably in weapon development and procurement. The fleet urgently requires an over-the-horizon missile capability, and the fiscal year 1984 program continues the development of the Tomahawk missile and upgrade of Harpoon missiles. We are also developing the capability to launch the ASROC from the VLS system to further increase unit flexibility.

The budget supports the MK-48 torpedo ADCAP development which continues on schedule; this modification, due to be operational in fiscal year 1986, will provide a counter to deeper-diving, faster submarines.

The 1984 budget meets the requirement to upgrade our amphibious capabilities with procurement of a new LSD-41 class landing ship, SLEPS for LPD-4 class landing ships, and continuation of the air cushioned landing craft (LCAC) program which will transport troops and equipment ashore at more than 40 knots.

The budget contains funds to complete reconfiguration of the fiscal year 1981 Trident submarine for the D-5 missile, with its greater accuracy, range, and payload capabilities. The budget also includes adequate support for our 31 existing Poseidon SSBNs, three operational Trident submarines, costs associated with delivery of the fourth Trident, and the necessary command, control, and communication systems to ensure strategic "connectivity." These include research and development funds and the program to develop the ECX—one of our highest priority efforts. In all, the fiscal year 1984 program provides continued impetus to maintain a highly reliable, survivable and communications-viable undersea missile launch capability.

The Tomahawk cruise missile provides the Navy an extraordinary attack capability against both surface and land targets at long range. As you know, Tomahawk experienced a number of flight test problems in 1981 and early 1982, leading to a detailed independent review of the program in mid-1982. The review identified several weaknesses needing prompt resolution, and we have since restructured the program and taken other actions we felt necessary to achieve our Tomahawk goals. These corrective actions require additional funding in 1984, which is included in the President's request without an increase in TOA. We feel that this expenditure, and the accompanying two-year delay to 1985 in introducing the conventional land attack variant of Tomahawk, are a price well worth paying for an effective program.

Our R&D funding requests are important to support continued fleet modernization, and shortages have been exacerbated by the 'bathtub' effect caused by increased R&D requirements associated with the Trident program. Our management effort includes a strenuous effort to limit new starts to key projects that I have previously discussed which show promise of high payoff.

Today's Navy is heavily involved using the latest American technology across the naval warfighting spectrum as we always have. However, we must ensure that we are not helping our potential enemy to modernize at the same pace we introduce new weapons. We must ensure that we do not inadvertently accede to policies which allow clear technological advantages in military systems to erode, and need to reinforce efforts to restrict the free, unfettered availability of critical military technology to potential adversaries.

Protecting our advanced technology from falling into the hands of our potential adversaries, as underscored in the excellent report released 14 November 1982 by the U.S. Senate Permanent Subcommittee on Investigations, is an absolutely crucial issue. For example, in the area of integrated circuit development, the Soviets have dramatically closed a 10-year gap to a year or two over the last decade, mainly because access to our own unclassified technology is unrestricted and available. Another example of unwanted technology transfer is the case of a Hungarian who attended scientific conferences and studied magnetic bubble memory technology in the U.S. Later, in a Hungarian publication, his study's military and commercial implications became apparent as the Hungarians proudly claimed they had provided the Soviets with new magnetic bubble memory capabilities.

FISCAL YEAR 1984 FORCE LEVELS

The fiscal year 1984 budget requests procurement of 23 ships, including 17 new construction and conversion funds for a hospital ship, combat stores ship and four SL-7's/TAKRX. The new construction ships are one *Ohio*-class SSBN configured for the TRIDENT II, three *Los Angeles*-class SSNs, three *Ticonderoga*-class cruisers (CG), four MCMs, one coastal mine hunter (MSH), one LSD, one amphibious assault ship (LHD), and three oilers. (A table at the end of the statement provides a detailed listing of the platforms programmed for fiscal year 1984 and the FYDP.) The mine countermeasures ships and the coastal mine hunter, a new class of ship, will provide the help necessary to revitalize our surface ship mine countermeasures capability in order to clear our own ports.

We are requesting advanced procurement funds for DDG-51 construction to begin in fiscal year 1985 in order to provide timely replacement for ships of the DDG 2 and DDG 37 classes which face block obsolescence as they reach 30 years of service life commencing in 1989. This must be a tough, survivable ship, and warfighting capability has been our primary concern through the preliminary design phase. We have tried to consider all possible concepts and characteristics in proper perspective while providing a highly capable ship in the numbers we need within budget and acceptable technical risk. DDG 51 characteristics should provide warfighting capability while retaining flexibility through the contract design phase to capitalize on technical improvements which, if proven, can be incorporated in the lead or follow ships. We then will be in a better position to assess tradeoffs in cost and capability, and determine which design budget reservations should be retained in the lead ship design for potential forward fit or backfit.

Expanded aircraft procurement, 281 total, is requested in fiscal year 1984, most notably for the F/A-18 Naval Strike Fighter, the AV-8B Advanced Harrier which will improve close air support for Marine ground combat units, and the SH-60B LAMPS III ASW helicopter which will enhance our surface ship ASW capabilities. These requests include associated support requirements, aircraft modifications, aircraft support equipment and facilities, and spares and repair parts. As I noted before, the program to modernize our tactical aircraft has been carefully integrated to support our increase in 15 deployable carriers and 14 active duty air wings. Aircraft will be delivered as they are needed to support the fleet. While the aircraft requested provided important increases in capability, we will still fall short of the number of aircraft required to maintain the age of the inventory. Any cuts in this area would have a very deleterious impact on our rebuilding program.

The F/A-18 Naval Strike Fighter was designed to carry out fighter and attack roles for the Navy and Marine Corps. It has met requirements as an attack aircraft in all but three minor fighter requirements. There is no aircraft in the world today as good as the F/A-18 in the strike-fighter role and few aircraft which exceed its capability in either fighter or attack roles.

The fiscal year 1984-1988 Navy program will lead to a significant improvement in our nation's maritime strength. The budget request before you is an integral part of the program. We face a strong and growing adversary, and the resources requested are essential to develop the necessary maritime strength to protect our vital national interests.

CONCLUSION

I very much appreciate this opportunity to report on the posture of the Navy, and I want to leave you with what I believe are the fundamental issues to the Nation and the Navy, and therefore to this budget request.

The United States is a global power; we have vital national interests and treaty commitments which extend to every part of the world. At the same time, we face both a growing Soviet military threat whose naval strength has increased dramatically and the spread of advanced weaponry to virtually all potential adversaries. Our national security demands that U.S. be capable of bringing its influence to bear when and where we choose. Maritime superiority, as I have discussed it today, is central to such a capability and is vital to our national security.

The Navy is not on an uncoupled spending spree. We have a sound and comprehensive maritime strategy which supports national policy and national security objectives. Our strategy covers the spectrum of conflict from local to global wars, and it recognizes the special role of the Navy in peace and crisis as well as in war.

The Navy is making a great effort to be the very best custodians of the resources which you have provided. I have described management initiatives designed to spend our money more wisely, and I have touched on the leadership initiatives we have taken to develop the youth of America entrusted to the Navy.

The budget submitted to you today is an integral part of a broad and comprehensive program designed to restore the maritime superiority so vital to our security. We have begun to rebuild, but shortfalls or deferrals now will erode the synergism of our program and destory the momentum we have generated.

As I said to you before, we have a long way to go, but we do have a purpose, goals and comprehensive plan to manage the resources you provide. We are a Navy on the mend, and with your full support, we will reestablish the maritime superiority so vital to America's security.

Summary of total ship battle forces—as of February 11, 1983

Strategic forces:	
SSBN	33
Support	6
Total strategic forces	39
Battle forces:	
Aircraft carriers:	
CV	9
CVN	4
Subtotal	13
Surface combatants:	
BB	1
CG	19
DGN	9
DD	35
DDG	38
FF	55

FFG	31
Subtotal	188
Submarines:	
SS	5
SSN	92
Subtotal	97
Amphibious warfare	61
Mobile logistic ships	53
Patrol combatants	6
Mine warfare	3
Total battle forces	421
Support forces:	
Mobile logistic	20
Support ships	23
Total support forces	43
Mobilization forces (CATEGORY A):	
Surface combatants (DD/FF)	5
Amphibious warfare ships	4
Total mobilization forces (CAT A)	9
Total ship battle forces	514

AIRCRAFT PROCUREMENT

Aircraft	1984	1985	1986	1987	1988
A-6E	6	6	6	6	6
A-6F					
EA-6B	6	6	6	6	6
AV-8B	32	48	60	60	60
F-14	24	24	30	30	30
F/A-18	84	92	106	127	153
CH-53E	11	11	14	14	14
AH-1T		22	22		
SH-60B	21	18	18	18	18
SH-60F				6	36
P-3C	5	6	6	6	6
EP-3	2	3	3	3	3
E-2C	6	6	6	6	6
SH-2F	12	6			
C-9		8			6
UC-12B		24	24		
C-2	8	8	8	7	
T-34C	38	38	38		
T-44			15		
Adversary	4	8	12		
VTX (FCLP)		2	12	18	22
VTX (CQ)					8
TH-57	21	36			
ECX	0	2	3	3	3
B-707	1				
Total	281	374	389	310	377

SHIPBULDING

	1984	1985	1986	1987	1988
New construction:					
Trident	1	1	1	1	1
SSN-688	3	4	4	5	5
CVN					1

SHIPBULDING—Continued

	1984	1985	1986	1987	1988
CG-47	3	3	3	3	2
DDG-51		1		3	5
DD-963					1
LSD-41	1	2	2	2	2
LHD-1	1		1		1
LPDX					1
MCM	4	4	4		
MSH	1		4	4	4
AD				1	1
AE			1	1	1
AFS				1	
AOE			1	1	1
TAGOS		2	2	2	
TAO	3	4	4	4	4
TARC			1		
Subtotal	17	21	28	28	30
Conversion/reactivations/acquisitions:					
CV SLEP		1		1	
BB (reactivation)		1	1		
AMPHIB SLEP			1	3	3
TAFS (Acquisition)	1				
TAGM (Conversion)			1		
TAGS (Conversion)		2			
TAH (Conversion)	1				
TAK (Conversion)		1			
TAKRX (Acquisition/Conversion)	4				
Total	23	26	31	32	33

Chairman Tower. Thank you, Admiral Watkins.
General Barrow.

STATEMENT OF GEN. ROBERT H. BARROW, COMMANDANT OF THE MARINE CORPS

General Barrow. Mr. Chairman and distinguished members of this committee, it is an honor for me to appear before you in my last appearance before this committee as Commandant of the Marine Corps.

Chairman Tower. Don't count on that, General.

General Barrow. I will be glad to come back, sir.

Chairman Tower. We haul retired officers up from time to time and talk to them.

General Barrow. You are going to have a hard time finding me, Senator. [Laughter.]

I am going back where one can hear a leaf drop on the water. Sir, this is my final report. I do take this opportunity to express my deep appreciation to this committee for your very strong and constant support of your U.S. Marine Corps.

Across the board, the Marine Corps, your Marine Corps, is healthy and getting healthier as the programs you have previously authorized continue to move toward fruition.

Beyond that I am heartened by the ongoing actions to strengthen our naval forces overall as alluded to by Admiral Watkins and Secretary Lehman. Because I have spent most of my professional marine life associated with the sea, I am often accused of having a strong naval bias. I readily admit to that, but I am firmly convinced that our Nation's security is closely tied to the effective use of seapower.

One simply cannot ignore the geographic and political realities which underlie the security of our citizens. We must preserve our oceanic lifelines and, in the event of war, we must possess the means to reinforce our allies and act with a degree of resolve, historically characteristic of this great island nation.

Success will require strong maritime responses, responses which stem from a clear maritime superiority and which rest on a solid foundation of American seapower.

Now, simple economics tells us that we cannot have forces stationed in every location where there may be a potential crisis. That means that, when required, we must be ready and able to move appropriate combat power to crisis areas.

An amphibious task force with marines embarked can be deployed over the seas independent of fragile political agreements or forward basing to a precise location to provide deterrence, to signal our Nation's resolve, or to respond appropriately should deterrence fail.

The Marine Corps, with the flexibility of task organizing its forces to the mission at hand, with its unique forcible entry capability, and with the means to sustain itself from the sea, provides this Nation with an absolutely invaluable capability. Nothing perplexes those who would create mischief more than the knowledge that somewhere beyond the ocean's horizon there is a Navy-Marine amphibious task force poised and ready to deal with that mischief. This has been the steadfast utility of the Marine Corps—the readiness to respond with the capability to do whatever needs to be done.

READINESS

I indicated 4 years ago when I appeared before this committee that my No. 1 priority would be readiness. That commitment has not changed. As you know, readiness encompasses many things—people, equipment, training, and leadership. It is a proper melding of these elements which produces true readiness.

Your marines today continue to hone their skills as units as well as individuals to maintain a constantly high state of readiness. That we demonstrate that routinely is not generally known. For example this past year, 1982, the marines participated in more than 180 exercises, almost half of which were conducted beyond our shores with the forces of approximately 50 foreign countries. Intensive training such as this prepares us to respond appropriately to crises of all kinds—as evidenced by your marines now serving so well in Lebanon.

MARINE BUDGET REQUEST

I have never knowingly misled you nor will I today. Our budget request, this request that is before you today, reflects what we would characterize as a balanced program, a balanced program of those essential elements necessary to insure that the Marine Corps remains a viable force-in-readiness for this country.

The ingredients of our program reflect essential modernization of aging combat equipment, a modest increase in manpower, and improvement in our capability to sustain our Marines once in combat. There are no frills, no exotic equipment.

Let me say now that all of us in the Marine Corps from the Commandant down to the private out there serving so well, are excited over the ongoing initiatives to enhance our capability to fight and win, enhancements which are appearing indeed across the board in improved individual and crew served weapons for our people down in the infantry battalions, rifle companies, and rifle platoons, in greater antiarmor capabilities, and in significantly enhanced artillery firepower.

We are increasing our ground mobility. We are replacing old tactical vehicles that are worn out with a new multifunctional vehicles we are improving and extending the life of our amphibious assault vehicles and acquiring light armor vehicles. We are improving our command and control capability. Our aviation modernization, vital to providing flexible, responsive, and effective support for our marines on the ground, is also being improved.

I am encouraged with the steady progress we are making in the modernization of our attack fighter, and heavy lift helicopter capability.

I am concerned, however, over our declining medium lift assault capability, our CH-46 medium lift helicopter. I look forward to the JVX which you referred to, Mr. Chairman, to meet our needs in that critical area.

It does no good to be ready at Camp Lejeune, N.C., or Camp Pendleton, Calif. We must continue to maintain strong forward deployed forces afloat and, most importantly be capable of projecting ready forces across the sea to where they are needed.

In this respect, I stongly support the efforts of Secretary Lehman and Admiral Watkins, not only to regain clear maritime superiority, but within that context, to improve the amphibious lift that is so essential to the marines' principal reason for being: An amphibious operation. The amphibious shipbuilding program promises revitalization of the amphibious lift capability of the Navy-Marine Corps team. Within that context a notable example is the landing craft air cushion hovercraft vehicle which represents a revolutionary breakthrough in the ship-to-shore movement.

NAVAL GUNFIRE SUPPORT

I must also emphasize my intense interest in the emerging improvement in the naval gunfire support—a longstanding concern of the Marines. Because we have not had a situation in which it has been used for so many years, it sort of dims in the memory of those who have not been closely associated with it as I have been in the past. I strongly support the activation of the three remaining *Iowa*-class battleships.

An area of considerable concern to marines and to all of us, indeed, is the matter of combat medical support. Existing bed capacities and surgical facilities are inadequate. The fleet hospital and the hospital ship program which are in this budget are moral imperatives in my judgment, and should be actively pursued.

The most innovative and promising strategic mobility initiative in my time in the Marine Corps, and I would think in the last 50 years, is our maritime pre-positioning program. Although the program is not generally understood, I think it is a perfect example of the kind of innovation and exiciting promise that we are now working with. This concept, quite simply, provides for the rapid commitment of highly capable and sizable marine forces to crises area and combines the best features of sealift and airlift.

MARINES ABILITY TO MEET THE CHALLENGES

The Marine Corps' ability to meet the challenges of the future will depend ultimately on quality people who can endure rigorous training, accept firm discipline, respond to sound leadership, and perform intelligently and effectively.

We have been putting our money up front, so to speak, by assigning our very best marines to recruiting duty, the kind of young men and women who are capable of doing anything, who press on and succeed. That is who we have been putting out there and their performance and results have been truly magnificant. They have been recruiting those individuals capable of upholding our standards.

Success in battle is not a function of how many show up, but who they are. The quality of the Marine Corps is assured through uncompromising adherence to certain high standards of performance, conduct, physical fitness, and appearance. Your marines passionately seek to serve their country and serve it well. I know this is not only from charts and statistics and briefings; I know it from the look in their eyes, the things they say to me, and the high spirit that they manifest. It is that spirit which sets marines apart. It is a spirit which disavows defeat, fatigue, and repeated hardship; a spirit which finds its wellspring within the individual, is forged and molded on the recruit drill field, a most precious part of our distinctiveness, and then tempered in every successive unit in which a marine may serve.

During the past year I have visited your marines around the globe from the Mediterranean to Japan, from the Baltic to Australia. They are enthusiastic, high spirited, training hard, and, most importantly, they are ready, willing, and able to deal with the task at hand.

This committee knows so well that defense is not cheap, but in this business second best is not good enough. While the price of an adequate defense may indeed be quite burdensome, the price of an inadequate defense, however, can be sheer disaster.

With your support, your Marine Corps will continue to be the world's premiere force in readiness, willing to accept the challenge, ready to respond when called, capable of doing whatever needs to be done.

Mr. Chairman and gentlemen of this committee, I will shortly end 41 years of service as a marine. I am proud of that service. I am proud of my corps. I am proud of the state of that corps on which I reported to you today in somewhat summary fashion.

I am most especially proud of the relationship and the trust and confidence that has existed between us, this committee and individuals of this committee, during my tenure as Commandant. In a word, it has been honorable and I thank you for that, sir.

That concludes my statement.

[The prepared statement of General Barrow follows:]

PREPARED STATEMENT OF GEN. ROBERT H. BARROW, COMMANDANT OF THE MARINE CORPS

Mr. Chairman, distinguished members of the committee, once again I am gratified with the opportunity to report to you on the present and future posture of your Corps of Marines.

This represents my final report to you as Commandant of the Marine Corps. For more than forty years, it has been my distinct privilege to wear this uniform in the service of our great Nation. I have been granted the honor, the highest honor, of sharing the title Marine with thousands of others who have proudly worn the same uniform in war and peace. During my watch, this country has endured three wars and experienced countless other occasions where Marines have acquitted themselves with unchallenged professionalism and undiminished esprit. As I look to the future, I have confident in the sure knowledge that those qualities which have always set Marines apart will remain unchallenged and undiminished.

Today, the Marine Corps is as capable and ready as we have ever been. All indicators are positive. They clearly demonstrate that the Corps is sound and thriving. The credit for this rests with the selfless men and women who have served, and are serving, to foster our heritage and preserve our legacy. However, they could not have realized their accomplishments without the confidence and support of the Nation and the Congress of the United States. Without your confidence, we could not attract and retain the superb quality of young men and women who fill our ranks today. Without your support, our capability to serve as the Nation's force in readiness would be greatly diminished. Your efforts have resulted in better compensation and benefits, better equipment and, in the final analysis, a better and readier Marine Corps—a Marine Corps capable and prepared to meet the challenges of today and of tomorrow. I assure you, a more cost-effective investment in national security is not available.

The challenges to our vital national interests, and to those of our allies, will require strong maritime responses—responses which are reflected of a strategy of maritime superiority and which rest on the solid foundation of American and allied seapower.

American seapower can, and must continue to, meet the first challenge—the threat to our vital interests posed by global uncertainties and unrest. Virtually all of our interests abroad, including our increasing interdependence with Europe and Japan, are inextricably linked to the maritime trade routes, the sea lines of communication, and the strategic maritime choke points. If we are to maintain free access to and through the world's waterways and if we are to protect our access to allies and resources, we must be able to exercise the full range of capabilities inherent to seapower.

American seapower must be equally capable and prepared to meet the second and most ominous challenge—the challenge posed by the rapidly expanding and increasingly capable Soviet Naval forces. The expending Soviet blue water capability exacerbates the challenge of uncertainty and unrest. It increases the direct threat to our vital interests, challenges free access, and broadens the potential for direct United States-Soviet confrontation.

Credible American seapower can meet these challenges and deter mischief or aggression. Naval forces, Marines and Sailors, represent a major link in the national defense chain of deterrence. Without them, deterrence would surely fail.

The Navy/Marine Corps team, as represented by amphibious task forces, is a primary instrument of deterrence, of diplomacy, and of offensive power projection. Inherent mobility and sustainability permit amphibious forces to concentrate the requisite combat power at the times and places required and then, upon completion of the task, to move on and apply that power elsewhere. The ground and air power projection capabilities which are integral to the amphibious task force are the implements of forcible entry.

Amphibious task forces represent this Nation's most effective and enduring forcible entry capability. Our forces can seize and control strategic choke points and lodgments as well as establish and defend advanced bases. As a device for strategic distraction, amphibious task forces constitute a significant force multiplier which, by virtue of their presence alone, can divert, fragment, and constrain major enemy forces.

In employing amphibious task forces, theater commanders have at their disposal a flexible and powerful combined-arms capability which can either operate independently or, in coordination with other Services and allied forces, execute joint/combined operations. I am confident you recognize that such global reach and flexibility can take maximum advantage of Soviet vulnerabilities, provide maximum assurance to our allies and thereby protect our worldwide interests.

These then, are the strategic and tactical advantages associated with amphibious task forces in the application of seapower and the execution of amphibious warfare.

The Marine Corps' fundamental mission is amphibious warfare. To accomplish that mission we provide a Fleet Marine Force (FMF) of combined-arms, including integral supporting air components, which serve as landing forces with the various numbered fleets. We support those fleets by exercising our capabilities to seize and defend advanced naval bases and by conducting land operations necessary to the successful prosecution of a naval campaign. Marine forces supporting the fleets are organized so they are mission capable; that is, they are task organized. Task organization of forces is a basic tenent of the amphibious warfare and permits us to "tailor" our forces for a specific mission or location. By so doing, we provide hard-hitting, flexible, and mobile fighting forces which can respond rapidly and economically. In short, Marine Air Ground Task Forces (MAGTFs) provide a significant capability for a comparatively small investment.

However, in order to maintain our unique capabilities, an investment continues to be required. To that end, I wish to outline just what that investment will yield for you and for the Nation.

ENHANCEMENT PROGRAMS

In order to provide a clear picture of our requirements I will detail the Marine Corps' major programs, as well as Navy programs of special interest, within the context of the amphibious assault. Forcible entry from the sea is our most unique contribution to the Nation's defense and is integral to MAGTF capabilities. The initiatives we are proposing are designed to strengthen those capabilities and to maintain our traditionally high degree of readiness and rapid response.

The amphibious assault has five distinct phases: beginning with the planning phase, continuing through embarkation, rehearsal, movement to the objective, and finally, culminating with the assault. While the focus of my remarks will be directed primarily toward the assault and subsequent operations, ashore, it is not my intention to minimize the importance of the four preliminary phases. To the contrary, our ability to execute a successful assault is totally dependent on our ability to get there. Getting there is, in turn, dependent upon the availability of sufficient amphibious and merchant shipping which is where I would first invite your attention.

The Marine Corps fully supports the Department of the Navy (DON) goal of a 600-ship fleet. We recognize that implementation of a global maritime strategy requires balanced naval forces—forces capable of influencing events on the seas and extending that influence ashore for both offensive and defensive purposes. A balanced maritime capability must provide not only the formidable air, surface, and subsurface dimensions of naval warfare but also the ground/air power-projection dimension inherent to the amphibious task force.

Relative to amphibious shipping, the DON mid-term objective is to provide sufficient ships to simultaneously lift the assault echelons (AE) of a Marine Amphibious Force (MAF) and a Marine Amphibious Brigade (MAB). This represents a change from our previous goal of adequate lift for a full MAB in addition to a MAF(AE). This change is indicative of our continuing efforts to achieve realistic lift objectives within the programmed and planned amphibious ship capabilities. To accomplish this we have scaled down the overall lift requirement by shifting a portion of the MAB's combat service support elements—Marines, vehicles, and supplies—to an assault follow-on echelon (AFOE) which will be carried by commercial ships. Accordingly, DON has restated the requirement to reflect the capabilities necessary for the simultaneous lift of a MAF(AE) and a MAB(AE). Although this lift requirement exceeds current amphibious ships' capacities, we plan on a progressive increase in capability as the amphibious force levels improve concurrent with attainment of the 600-ship Navy in the 1990s.

As I look ahead, I am encouraged by the prospects. Amphibious shipbuilding programs are on track and directed towards revitalizing our amphibious capability. This represents an opportunity to truly modernize a large portion of the amphibious force. The first two ships of the LSD-41 Class are on the building ways. The Navy currently plans to build at least 10 LSD–41s, and the total result may be 13 to 17. The LHD–1 Class—essentially an LHA altered to allow transport, launch, and recovery of both fixes and rotary wing aircraft—is in the contract design stage. The Navy is requesting funds in the Fiscal Year (FY) 1984 budget to build the first LHD. Both the LSD–41 and LHD–1 Class ships will have the capability to carry the landing craft, air cushion (LCAC).

Finally, and although still in the conceptual stage, the Navy is taking a hard look at increasing the cargo carrying capacity of future amphibious and support ships. Concepts ranging from an LSD–41 variant to a new attack cargo ship are being studied.

Perhaps the most innovative strategic mobility initiatives we are sponsoring are those associated with the pre-positioning concept. Our pre-positioning programs, both land and maritime, provide new dimensions in the Nation's capability to rapidly deploy and sustain Marine combined-arms teams on a global basis. They represent mobility enhancements which serve as prescriptions for the rapid employment of credible, sustainable forces into permissive environments. These programs are designed to complement, not replace, our forcible entry capability, which remains the backbone of power projection. In time of crisis, Marines would be airlifted to a contingency area for link-up with pre-positioned supplies and equipment and to subsequently form for combat.

The Maritime Pre-positioning Ships (MPS) program will provide forward deployed, floating depots of equipment and supplies to support three brigade-sized MAGTFs. In the near term, the Marine Corps has placed equipment and supplies for one brigade-size MAGTF aboard Military Sealift Command chartered vessels. This near-term capability will remain on-station until replaced by the third of the more mature MPS task groups.

MPS task groups will be comprised of specially designed and outfitted vessels termed T-AKX. They will expand our current capability by providing a self-load and off-load system for pierside and in-stream cargo discharge. The MPS concept is particularly naval in character and will provide an independently employable force of combined-arms which will be capable of stand-alone operations. This concept provides a wide range of flexible alternatives which make it suitable for: Preemptive presence; reinforcement of an amphibious assault beachhead, other U.S. forces and/or allies; surge support of U.S. forces; deterrence and peacekeeping; and humanitarian assistance.

Our maritime initiatives are currently tailored to support the deterrence mission within the Southwest Asia region; however, at the same time they retain the flexibility for employment on a global basis.

Concurrently, programming continues for the land pre-positioning of equipment and supplies for a MAB in Norway. As a strategic mobility initiative designed to reduce force closure times to NATO's northern flank, this program has drawn significantly favorable political interest, particularly from the Norwegian government. Your support to complete this program will signal U.S. commitment and resolve within the region and will afford the National Command Authorities (NCA) an additional option for commiting Marine forces quickly. A United States/Norwegian storage agreement was signed on 6 October 1982, and initial deliveries of supplies and equipment commenced in November 1982.

Concern for the Nation's ability to move forces rapidly has been central in Marine Corps planning to reach the crisis area expeditiously, ready, and equipped for the mission assigned. Through such mobility enhancement initiatives, we remain in the forefront, poised and prepared to rapidly implement actions in support of our national interests.

Turning now to the assault phase, I'll continue by discussing the very critical period that precedes the landing of the landing force. During this period, it is essential that we initiate the process that will lead to our gaining relative combat superiority over the defenders. Prior to landing Marines in assault waves, the only five support means available are naval gunfire and aircraft. Both are critically important. The integration of their supporting fires is vital to our success during the early stages of the assault.

Naval gunfire provides readily available, all-weather, direct and indirect fire support and it the primary means of that support before artillery and tanks are operational ashore. Currently, our naval guns are deficient in size and number and are considered inadequate for all but selected scenarios. Our current naval gunfire capability rests solely on five-inch guns with conventional ammunition. This capability is adequate for soft targets within range but these weapons possess limited range and lethality. It is imperative, then, that our naval gunfire be sufficient to provide efficient and effective support to the landing force. The 155mm Vertical Load Gun would go a long way in providing such support. Additionally, the five-inch and 155mm semi-active, laser-guided projectiles (SAL-GP), in conjunction with the SEAFIRE targeting systems, can do much to alleviate the problem.

The reactivation of the *Iowa* class battleships will be a major improvement in the area of naval gunfire support as major caliber guns are reintroduced to the fleet. At a cost significantly lower than new construction for a lesser ship, the U.S.S. *New Jersey*, for example, provides massive firepower capabilities. I strongly support the reactivation of the remaining three *Iowa*-class battleships.

Aviation initiatives directly related to gaining and maintaining relative combat superiority, as well as air superiority, rest with the AV-8B and F/A-18 programs. Last year I stated that the AV-8B was vital to Marine Aviation's modernization program. It continues to be so today. Because of your strong support, the 32 aircraft requested in fiscal year 1984 will continue the march toward a 1985 Initial Operating Capability (IOC). At present, four Full-Scale Development aircraft are in flight testing with impressive results. We are committed to our ultimate goal of an all V/STOL light attack force, and are convinced that it will provide us the most flexible, responsive, and effective close air support capability in existence.

The first three F/A-18 Marine Fighter Attack squadrons are standing-up at MCAS El Toro, California. The Marine Corps strongly supports the F/A-18 program as a replacement for the aging F-4s in our 12 active fighter/attack squadrons. The capabilities of this superior aircraft allow us to meet the fighter requirements of the modern battlefield as well as provide reinforcement for our attack squadrons when the situation dictates.

During the critical movement from ship to shore, whether in the helicopter borne or surface assault echelons, we require maximum use of supporting arms—and maximum speed and efficiency in execution of this vital phase of the amphibious assault. Having discussed the supporting arms aspects, I'll turn to those programs designed to enhance the manner in which we execute the assault.

The Navy's LCAC program represents a revolutionary break-through in ship-to-shore movement. Current projections envision a force of about 100 of these advanced surface craft. The first six LCACs are under contract and the first LCAC base, at Camp Pendleton, California, is under design in preparation for the craft's delivery in 1986. The LCAC provides a quantum advance in amphibious capability by reducing our vulnerability and increasing our speed and flexibility. Its speed of over 40 knots and its 60 ton payload also provide us with a unique tactical opportunity for surprise landings from over the horizon onto widely separated beaches. LCAC will make the enemy's ability to defend far more difficult and vastly increase our flexibility and speed in the assault.

Assault amphibious vehicles, the workhorse of the amphibious surface assault, serve to further reduce our vulnerability during the critical ship to shore movement and improve our mobility on the battlefield. The assault amphibious vehicle Service Life Extension Program (SLEP) is intended to extend the utility of the LVT-7 into the 1990s. In addition to an extensive rebuild effort, the SLEP will add many new systems and components. Among these will be a new engine, non-integral fuel tank, and all-electric weapons station. The first Marine unit to be equipped with the LVT-7A1 will be operational in fiscal year 1984.

The Landing Vehicle Traced (Experimental) (LVTX) is under development as a follow-on for the LVT-7A1. The new LVTX will provide increased firepower, improved armor, and a lower silhouette.

To enhance our execution during the helicopterborne assault and to improve our maneuverability during subsequent operations ashore, our aviation community is also pursuing a number of modernization initiatives.

As I reported last year, our declining inventory of medium lift assault helicopters is of great concern to me. Due to the effects of inadequate performance and peacetime attrition, the aging CH-46 and CH-53A/D force lacks adequate capabilities to meet our assault lift requirements. JVX meets the need for a 250 knot assault transport that is self-deployable worldwide, reducing some of the demand for strategic air and sea lift. The urgent need for JVX stems from the requirement for modern replacements for the current force as well as to avert the critical lift shortfall that would occur if JVX were not introduced in 1991. JVX capabilities will complement those of the LCAC and LVTX. Capable of lifting 24 Marines up to 200 nautical miles, JVX will provide increased stand-off for naval and landing forces, the ability to rapidly penetrate deep into enemy rear areas or to bypass adverse terrain, weather or threats. Thus, JVX offers a quantum increase in strategic and tactical mobility. R&D funds requested in fiscal year 1984 will lead to delivery of the first JVX in 1991.

Presently we have two squadrons of CH-53E helicopters operational. This aircraft can lift 32,000 pounds, more than any other helicopter in the free world. The fiscal year 1984 procurement profile supports the immediate goal of three squadrons which, in conjunction with the 5 squadrons operating the CH-53A/D, will minimally meet the current heavy lift requirements. However, the ongoing introduction of the M198 Howitzer and subsequent fielding of the Light Armored Vehicle (LAV) will require additional CH-53Es.

As the lead elements of Marines move across the beach and into the helicopter landing zones, the assaulting infantry battalions will be capable of striking with increased firepower as a result of the introduction of new weapons systems—and they will do so with fewer personnel. Their weapons will include the improved M16A2 rifle, the Squad Automatic Weapon, the Shoulder-Launched Multipurpose Assault Weapon, the Lightweight Company Mortar System, and an improved medium mortor. The first of these smaller, firepower intensive battalions was organized in October 1982, with an additional 14 battalions to be restructured during 1983. Nine more infantry battalions will be reorganized in 1984, and the final three battalions will realize this increase in firepower in 1985. (Figure 1 refers).

INFANTRY ENHANCEMENTS

SMALLER - FIREPOWER INTENSIVE	• PERSONNEL - BATTALION FROM 913 TO 822 (FY83-85) • FIREPOWER UP 25%
IMPROVED SMALL ARMS	• .50 CAL MG - 8 PER BATTALION; PROCUREMENT FY82-83 (IOC FY83) • SHOULDER-LAUNCHED MULTIPURPOSE ASSAULT WEAPON (SMAW) 18 PER BATTALION; PROCUREMENT FY 83-88 (IOC FY84) • SQUAD AUTOMATIC WEAPON (SAW) - 54 PER BATTALION; PROCUREMENT FY82-87 (IOC FY84) • M-16 PRODUCT IMPROVEMENT PROGRAM (PIP) - PROCUREMENT FY82-87 (IOC FY84) • 9 MM PISTOL - PROCUREMENT FY84-87 (IOC FY85) • MK19 40 MM GRENADE LAUNCHER - 12 PER INFANTRY BATTALION - PROCUREMENT FY82-87 (IOC FY84)
MORTAR ENHANCEMENTS	• MEDIUM - PROCUREMENT FY85-87 (IOC TBD) • 60 MM - PROCUREMENT COMPLETE (IOC FY82)

Figure 1

Having established our assault elements ashore, it is then necessary to secure our positions on the beaches and within the helicopter landing zones and to commence expanding those positions prior to the thrust for deeper objectives. The most critical threat to our ability to successfully maintain and expand that initial toehold is enemy armor action. Realizing that, and in appreciation of the magnitude of opposing armor and mechanized capabilities, we are sponsoring certain programs to further increase our firepower. Our infantry battalions will engage and defeat enemy fighting vehicles with the MK-19 heavy machine gun. New light anti-armor weapons are undergoing joint Army and Marine Corps evaluation. In addition, our medium anti-armor assets, DRAGONs, will be increased from 24 to 32 per battalion. Half of these new DRAGONs will be equipped with a night sighting capability beginning in 1985.

To provide a heavy anti-armor capability for the assault elements, a new TOW platoon with 24 launchers will be added to each infantry regiment. This will effectively double our heavy anti-armor assets within the division. The new TOW II with a 6″ warhead, extended range, and electrical optic countermeasures will be fielded in fiscal year 1984. Half of the TOW launchers will also have a night sighting capability by fiscal year 1985.

As the assault waves of infantry clear the beach, heavier landing craft will bring ashore another important anti-armor weapon, the tank. The M6041, our main battle tank, will end its service life in the early 1990's; however, efforts are underway to either upgrade our present assets or to replace them with tanks providing enhanced anti-armor capabilities.

Additionally, excellent progress is being made in air deliverable weapons which provide outstanding accuracy against armor and other high-value targets anticipated on the modern battlefield. For our fixed wing aircraft, recent Laser Maverick tests have been a total success and we are anticipating an IOC in March 1985. The 25mm Multi-purpose Cannon for the AV-8B also increases our anti-armor capabilities while the Gator mine provides an area denial capability which is essential in a highly mobile, armor-intensive situation. Hellfire has been selected as the primary precision-guided munition for use by our attack helicopters; procurement begins in fiscal year 1984. (Figure 2 refers).

ANTI-ARMOR ENHANCEMENTS

TUBE-LAUNCHED, OPTICALLY-TRACKED, WIRE-GUIDED MISSILE (TOW)	• 144 TOW/DIVISION-PROCUREMENT FY80-86 (IOC FY82) • PHASE I PROCUREMENT COMPLETE FY81-5" WARHEAD AND EXTENDED RANGE TO 3750 M (IOC FY81) • PHASE II PROCUREMENT BEGAN FY80-6" WARHEAD, EXTENDED RANGE AND ELECTRICAL OPTICAL COUNTERMEASURES (EOCM) (IOC FY83) • NIGHT SIGHTS, 72/DIVISION-PROCUREMENT FY80-86 (IOC FY82)
DRAGON	• 8 ADDITIONAL/BATTALION, TOTAL 32 (IOC FY83)
TANKS	• M60A1, END OF SERVICE LIFE EARLY 1990s • REPLACE OR UPGRADE • ENHANCED ANTI-ARMOR CAPABILITY
AIR DELIVERED	• MODERN ARMOR THREAT NECESSITATES AIR DELIVERED ANTI-ARMOR WEAPONS WHICH OFFER INCREASED AIRCRAFT SURVIVABILITY AND TARGET LETHALITY • NEAR-TERM, STATE-OF-THE-ART, ANTI-ARMOR WEAPONS BEING PURSUED FOR BOTH FIXED WING AND HELICOPTERS · LASER MAVERICK - FIXED WING PGM (IOC FY85) · HELLFIRE - HELICOPTER PGM (IOC FY86) · GATOR - AREA/AREA DENIAL WEAPON (IOC FY85) · 25MM MULTI-PURPOSE GUN FOR THE AV-8B (IOC FY85)
LIGHT ANTI-TANK WEAPONS	• CONTINUE TO PARTICIPATE WITH ARMY IN LAW EVALUATION PROGRAM · INTERESTED IN MOST COST EFFECTIVE SYSTEM THAT MEETS USMC REQUIREMENT

Figure 2

The AH-1T attack helicopter adds another dimension to our anti-armor capability. However, due to necessary resource allocations, the 22 AH-1T procurement, previously scheduled during fiscal year 1984, has been deferred one year. A procurement schedule of at least 22 aircraft for fiscal year 1985, with commensurate advance procurement in fiscal year 1984, is essential.

As the beachhead is sufficiently cleared to allow for the landing and emplacement of additional supporting arms, our artillery is brought ashore. In keeping with our proven doctrine of totally integrating our combined-arms effort, our artillery units will be strengthened by programs designed to enhance their effectiveness in general and, in particular, their anti-armor/mechanized capabilities. Introduction of the M198 155mm howitzer as our primary direct support artillery weapon significantly increases the lethality, range, and accuracy of our artillery units. Accuracy and lethality will be further improved by combining COPPERHEAD precision-guided projectiles with the Modular Universal Laser Equipment. Additional 155mm self-propelled artillery will be added to the force, not only increasing the numbers of artillery pieces available but also providing additional mobility to support the fast moving aspects of the battlefield of the future and furthering our anti-armor/mechanized capabilities. (Figure 3 refers).

ARTILLERY ENHANCEMENTS

CONVERSION TO M-198	• NEW IMPROVED STRUCTURE TRANSITION FOR FY83-85, PROCUREMENT FY79-82 (IOC FY82) • 105MM HOWITZER REDUCTION OF 138, 155MM HOWITZER INCREASE OF 168
ADDITIONAL 155MM (SP)	• INCREASE OF 30 TUBES - 3 BATTERIES BY FY86, TOTAL 5 BATTERIES BY FY89
ADDITION OF TARGET ACQUISITION BATTERY	• ONE EACH IN FY85, 87 AND 88
PRECISION GUIDED PROJECTILES	• MODULAR UNIVERSAL LASER EQUIPMENT (MULE) PROCUREMENT FY82-85 (IOC FY84) • COPPERHEAD - (IOC-FY85)
FAMILY OF SCATTERABLE MINES (FASCAM)	• AREA DENIAL ARTILLERY MUNITION (ADAM) (IOC FY82), ANTI-PERSONNEL MINES AND REMOTE ANTI-ARMOR MINE (RAAM) ANTI-TANK MINES - PROCUREMENT FY81 (IOC FY83)
ARTILLERY COMPUTER SYSTEM	• PROCUREMENT FY85 (IOC FY85)

Figure 3

A second, and equally critical, threat to our successful establishment of Marines ashore is the enemy's air attack capabilities. The steady expansion of Soviet attack capabilities, illustrated by weapons systems such as the HIND-D and MIG-27, demands improved air defense protection for our front-line Marines as well as our vital rear area installations. These requirements are being addressed as quickly and economically as possible through the acquisition of IHAWK systems and Stinger missiles.

In order to integrate these offensive and defensive systems into a cohesive, responsive, and lethal fire support team, we must posess the means to control and coordinate their diverse capabilities. MAGTFs are organized, equipped, and trained to operate in a totally-integrated combined-arms structure, thus providing our commanders the capacity to control all elements of the team including ground combat, aviation, and logistics. To that end, unique command, control communications, and intelligence (C3I) capabilities are required. The following programs for C3I systems will satisfy that requirement.

The Position Location Reporting System (PLRS) is designed to provide commanders and equipped units with instantaneous friendly position and navigation information. PLRS will interface with the Marine Integrated Fire and Air Support System, a real-time processing system which will be available in fiscal year 1988 to provide commanders selective automated assistance to efficiently employ supporting arms at all echelons of the MAGTF. Our Tactical Air Operations Center-1985 (TAOC-85) is a modular, state-of-the-art, real-time air control system that will manage airspace and coordinate and control both interceptor aircraft and surface-to-air missiles. This system will also serve as the initial host platform for the Joint Tactical Information Distribution System (JTIDS). JTIDS, when fully implemented in this and other follow-on systems, will provide a high-capacity, secure, jam-resistant data distribution capability for the real-time exchange of tactical information within the Marine Corps and with other United States and NATO forces.

Recent events validate my comments of last year regarding the great strides being made in our Tactical Exploitation of National Capabilities program. Marine Air-Ground Task Forces throughout the world, some of which have only limited organic reconnaissance capabilities, are now receiving national intelligence systems support on a regular and continuing basis. The value of national collectors, in combination with theater and organic systems, was highlighted by the vital and effective intelligence support provided to our Marines deployed to Beirut, Lebanon. Finally, we have a clearly defined requirement to improve our tactical intelligence capabilities. Congress has recognized our deficiencies, and those of the other Services, and has taken steps to ensure the resources are made available to correct them. The status of the Marine Air-Ground Intelligence System offers proof. The heart of the system, the Intelligence Analysis Center, is now in procurement and a 1985 IOC is assured. The full field deployment of the Marine Air-Ground Intelligence System will significantly enhance our ability to support tactical commanders. Our all Source Imagery Processor will allow the commander to receive and process in near real time multisource imagery from national as well as his own tactical imagery sensors. Additionally, we are in the process of upgrading and enhancing our Signals Intelligence and Electronic Warfare Systems to improve our tactical and strategic intelligence collection capabilities.

Once we have solidified our positions on the beaches and within the landing zones, we are prepared to move inland to seize control of landing force objectives and consolidate the force beachhead. On the modern battlefield such a thrust requires a high degree of mobility. Tactical mobility provides the means to rapidly close with and destroy the enemy and to logistically support Marines in a highly mobile environment. There are two ground acquisition programs intended to improve our battlefield mobility in addition to those programs related to the LVT-7A1 which I have previously discussed.

First, a new dimension will be added to the battlefield in fiscal year 1983 with the activation of the first Light Armored Vehicle Company. This unit is the forerunner of a highly mobile, firepower intensive maneuver element which is going to be added to the Marine division and which will be unique because of its integrated combined-arms capability. These maneuver elements will be formed around a family of eight mission-role vehicles, all built on a common chassis. The light armored vehicles in each LAV organization will not only be strategically transportable but, when the situation dictates, helicopters will be able to move them deep into the enemy's rear area to seize key objectives.

Second, the High Mobility Multipurpose Wheeled Vehicle (HMMWV) is a new multi-functional vehicle which will streamline maintenance, training, and logistic support. Functionally, it will serve as a weapons platform, a communications vehicle, and a multipurpose logistics carrier. Perhaps most significant are the cost efficiencies offered by this new family of vehicles. HMMWV will replace seven types of motor transport vehicles currently in the inventory and, by doing so, will virtually halve that inventory (26,000 current vehicles will be replaced by 14,999 HMMWVs) while simultaneously increasing tactical mobility. (Figure 4 refers).

MOBILITY ENHANCEMENTS

LIGHT ARMORED VEHICLE (LAV)	• LIGHT WEIGHT, FLEXIBLE, AGILE, FIGHTING VEHICLE • FIREPOWER INTENSIVE ORGANIZATION • HELICOPTER TRANSPORTABLE • ENHANCED STRATEGIC TRANSPORTABILITY
HIGH MOBILITY MULTI-PURPOSE WHEELED VEHICLE (HMMWV)	• ENHANCED TOW CARRIER • WEAPONS PLATFORM FOR MK-19 40MM MG • REPLACES 8 MT VEHICLES IN MARINE DIVISION • REPLACES ALL COMMUNICATIONS VEHICLES • 26,000 CURRENT MARINE CORPS VEHICLES REPLACED BY ABOUT 14,000 HMMWVs (IOC FY85)
LANDING VEHICLE TRACKED (LVT7A1)	• SERVICE LIFE EXTENSION PRODUCTION PROGRAM BEGAN 1982 • EXTENDS USE UNTIL 1990s • NEW ENGINE, NON-INTEGRAL FUEL TANK, ALL ELECTRIC WEAPONS STATION • 329 NEW LVTs FOR MPS
LANDING VEHICLE TRACKED (EXPERIMENTAL) (LVTX)	• FOLLOW-ON TO LVT7A1 (IOC EARLY 1990s) • INCREASED FIREPOWER, IMPROVED ARMOR, LOWER SILHOUETTE

Figure 4

Finally, during the flight to consolidate the force beachhead and those subsequent operations ashore necessary for the accomplishment of a given mission, we must be capable of sustaining our combat power. Once deployed, our Marines must be able to stay and fight. Sustainability, in combination with weapons systems and people, is a necessary ingredient of our force projection capability.

Marine Corps requirements to lift the war-fighting equipment and supplies of the assualt follow-on echelon (AFOE) have grown with the overall growth of our MAGTF's combat power which, in turn, has been necessarily increased to counter the growing threat of the modern battlefield. With the growth in the assault echelon limited by the availability of amphibious shipping, the AFOE has had to accommodate a larger share of this expansion. Increasing lift requirements for the AFOE have, unfortunately, coincided with a decrease in the numbers of those ships (break bulk, self-sustaining) which have traditionally been utilized to lift that echelon. As the U.S. merchant fleet is moving toward greater numbers of non-self-sustaining container ships, we are moving to similarly configure our logistic pipeline to capitalize on this trend. In that regard, the Navy is planning to acquire Auxiliary Crane Ships (TACS) for in-stream off-load of the newer ships. The challenge posed by the expanded AFOE lies in the coordination required to get a significant number of different types of merchant ships at the appropriate ports in time to embark and sail in short order. The satisfactory solution to this entire equation will require a strong Merchant Marine and our continued coordination with the Military Sealift Command and the Navy.

Our momentum of our combat service support enhancement program, initiated during September 1981 through modernization programs, acquisition of new equipment, and manpower and management initiatives, continues on a steady course. Fleet Marine Force Commanders activated ten cadred units in fiscal year 1982 and will activate five more in fiscal year 1983 to restore the full spectrum of functional combat service support capabilities we require. The activations include the areas of rations, landing support operations, fuel, bridge, engineer, and maintenance support—all of which are vital to sustaining the landing force ashore.

Implementation of the Marine Corps' Field Logistics System (FLS) continues to be of vital necessity for our sustainability ans survivability on today's battlefield. Through FLS, we have begun to replace obsolete equipment while simultaneously improving combat service support. Full implementation is anticipated by fiscal year 1990.

The FLS in combination with the Navy Amphibious Logistics System forms the Navy/Marine Corps Amphibious Logistics Support Ashore program and will result in equipment savings due to commonality of equipment and repair parts support, increased use of commerical items, decreased training requirements, and improved effectiveness. FLS is designed around international dimensional standards in order to be able to use all modes of transportation, especially the container-capable merchant fleet.

This system, combined with the aforementioned combat service support enhancement initiatives, represents significant improvements which will provide the Marine Corps with a new dimension in logistics support capabilities and will considerably enhance our Fleet Marine Force sustainability and combat readiness posture.

I'll turn not to an area that causes me considerable concern—medical support. Amphibious operations in a high intensity environment will involve large numbers of casualties requiring immediate treatment and surgery. Under most contingency scenarios, the bed capacities and surgical capabilities found in the amphibious task force and landing force units would be overwhelmed early in the engagement. To correct this deficiency, I consider it imperative that continued emphasis be placed on the Navy's development of the Fleet Hospital program and the Hospital Ship program. The Navy's Rapidly Deployable Medical Facility, with a 1000-bed capacity, is scheduled for implementation in June, 1983. This is a positive start. The Navy Fleet Hospital program will provide 11,250 beds configured in 250, 500, and 1000-bed field hospitals to help resolve the critical shortage of in-theater medical support. The Marine Corps applauds the Fleet Hospital program; however, the global mission of our Corps requires the flexibility of sea-going medical support. Hospital ships, on-station with the amphibious task force, are required to deal with Marine and Navy casualties requiring immediate treatment before the beachhead is secure enough to implement a field hospital. During World War II, the Navy had 13 Hospital Ships. Today there are none and the need is critical.

MANPOWER

Up to this point, I have directed my remarks to the programs and equipment that will enhance, modernize, and maintain the deployability, combat readiness, and sustainability of the Marine Corps. The program I will now discuss, manpower, is the Marine Corps. It is my number one priority.

By the end of fiscal year 1984, our manpower program calls for an end strength of 197,300—an increase of 2,700 over the fiscal year 1983 level. The requirement for additional personnel is primarily tied to the weapons and equipment modernization and enhancement programs I have previously discussed. However, not all new weapons and equipment require more Marines. As mentioned, weapons and equipment additions to the infantry structure are allowing us to reorganize into smaller infantry battalions with greater firepower. The net result of our structural and manpower changes will permit us to increase manning levels slightly throughout the active force structure. Examples of specific increases which will be generated by our fiscal year 1984 manpower program include the reactivation of certain combat service support units, the activation of a Light Armored Vehicle unit, the reorganization of our artillery regiments, and the addition of Light Anti-aircraft Missile batteries.

Quality personnel, in sufficient numbers, remain the key to maintaining the readiness and combat capabilities of Marine operating forces. We continue to meet our accession requirements in both quality and quantity. Eighty-five percent of our fiscal year 1982 non-prior service accessions were high school graduates. More than 90 percent of those individuals were in the top three Armed Forces Qualification Test (AFQT) categories as measured by the Armed Services Vocational Aptitude Battery (ASVAB). In accordance with Congressional direction, all AFQT Category IVs are high school graduates. These recruiting accomplishments are particularly significant because they were made under the renormed ASVAB test, which corrected the tendency in previous tests to overstate an applicant's mental ability. Quality, rather than numbers, will continue to be the driving force in establishing our recruiting goals.

Our success in recruiting quality Marines in the past few years has been achieved, in part, by assigning our very best Marines to recruiting duty—one of the most demanding and difficult peacetime assignments. We are committed to this effort and intend to continue this policy. We will be similarly selective in the assignment of instructors to the recruit depots and other training establishments. I am convinced that this near-term investment in recruiting and training will result in long-term benefits to the Marine Corps. The number of Marines assigned recruiter and instructor duties meets the minimum requirements to accomplish these important tasks, and I urge your continued support for the recruiting and training overhead levels requested.

Reenlistment of proven, quality Marines is another key part of our manpower program. During fiscal year 1982, 15,051 Marines reenlisted. Our continuing emphasis on quality, the general state of the economy, and the improving national attitude toward military service have contributed to an excellent reenlistment year. A continuing concern, however, is our ability to retain Marines who have the skills needed to overcome critical shortages in various specialities or who can be retrained in those areas. The Selective Reenlistment Bonus (SRB) program is absolutely essential to fill identified shortages with high quality Marines. To this end we have developed a capability to target bonuses to specific Military Occupational Specialties (MOSs), rather than the more general Occupational Fields, giving us an exceptionally efficient and effective program. Our SRB program, in other words, is a success. From July 1980 to July 1982 the shortfall in Marines needed to man all MOSs at 85 percent of requirement, or better, was reduced approximately 40 percent. With your continuing support I am confident that even greater improvements will be made.

As with enlisted accessions, we continue to meet our annual officer procurement requirements. I am concerned, however, that because of the great improvement in retention in the past few years we will exceed the maximum promotion timing guideline given by Congress for the grade of major beginning in fiscal year 1985. Without appropriate grade relief, the promotion timing for this grade will continue to steadily increase beyond the promotion window fixed by Congress. As provided by the Congress, we are requesting through DOD a modification to the grade table established in the Defense Officer Personnel Management Act which will raise the current ceiling on the number of Majors that may be serving on active duty. This increase, only for the grade of major, will permit us to do two things. First we will be able to remain with the DOPMA management parameters. Second, we will be able to man a number of important billets external to the Marine Corps which support various DOD activities. Your support for this modification, which should reach you later this year as part of the substantive amendments to DOPMA, is essential and requested.

In fiscal year 1982 military compensation attained comparable levels with the private sector. In fiscal year 1983 the pay raise was capped at 4 percent, 50 percent below the level needed to maintain comparability by accepted measurements. The necessity to restrain government pay increases during times of overall national economic difficulties is recognized and the Marine Corps supports the Administration. As the economy does improve, however, I would urge that we return to our comparability goals. In the long run, Marines, and all military people, must be compensated at a rate that avoids the immensely expensive loss of experienced people which historically occurs when military compensation is permitted to fall behind that of the private sector.

"Quality of life" initiatives also directly affect retention and readiness. These initiatives embrace a wide variety of programs reflecting the Marine Corps' commitment to improving the human dimension of military service, that is, the working, living, and recreational conditions of our Marines. These programs include increased construction of improved bachelor and family housing, maintenance and training facilities and morale, welfare, and recreation facilities; continued development of Family Service Centers to assist Marines and their families; enhancement of dependent medical benefits and beneficiary awareness of the value of benefits and available services; increased educational benefits; and continued emphasis on fair treatment and equal opportunity for all Marines.

An area of particular concern to me, and one which I addressed last year, is the frequent family separations that we require of Marines in order to maintain a forward deployed posture in the Western Pacific. Our presence in Japan is necessary but I remain convinced that it can be maintained without adding to the sacrifices we already ask our career Marines to make. Conseqeuntly, I am committed to increasing the number of Marines serving in accompanied tours on Okinawa and at Iwakuni. Over the next few years, we intend to permit career Marines in Japan to elect accompanied tours—excepting those in specially designated ground and aviation combat units that deploy on a regular basis from their home stations. We will progress deliberately, pacing the transition to available housing. I am confident that the impact of this decision on Marine families and on the retention of quality career Marines will benefit generations of Marines to come.

Civilians represent a vital and major element of our total manpower requirements. Our fiscal year 1984 request for 21,618 civilians satisfies only minimal requirements. The civilian component permits us to more effectively man the FMF with Marines; provides continuity in the base and supporting establishments; and enhances FMF training, readiness, and sustainability.

I reported last year that we had launched a determined and concentrated campaign to eliminate the use of illegal drugs in the Corps. My policy remains plain and simple: the distribution, possession, or use of illegal drugs is not tolerated in the United States Marine Corps. The welfare of the men and women in my charge is a deep commitment, embedded from my earliest days as a Marine, and I am totally committed to ridding the Corps of this threat to its well-being. The key is leadership. We have that leadership—and we are making progress.

The manpower program in the active force is doing well. Accession goals are being met by quality individuals and improved retention is allowing us to keep the quality Marines we need. Our emphasis on quality and adherence to standards is providing us with a talented, efficient, and capable force—a Marine Corps of which I am extremely proud.

MARINE CORPS RESERVE

Sharing fully in the Total Force concept, the Marine Corps Reserve provides one-third of the manpower and one-fourth of the structure available for mobilization. Our Ready Reserve, consisting of the Selected Marine Corps Reserve (SMCR) and Individual Ready Reserve, is the primary source of this manpower. The SMCR forms the Fourth Marine Division-Wing Team, balancing combat, combat service, and combat service support forces which are ready to provide the trained units and individuals needed to bring the active Fleet Marine Force to full wartime capability. Prepared to augment, reinforce, or provide a Marine Air Ground Task Force, the SMCR rests on a solid foundation upon which we intend to build.

Readiness of the Reserve forces has continued to improve. During fiscal year 1982, Marine Corps reservists participated with active duty Marines in joint/combined exercises in Korea, Iceland, Denmark, Germany, and the Caribbean and sharpened their skills in seven major Reserve exercises in CONUS. Of the units tested for combat skills, 90 percent were found combat ready using active force criteria. Initiatives to improve mobilization readiness were tested during the recent JCS exercise "Proud Saber" as well as 131 separate unit mobiltization tests. Results indicate considerable improvement in our mobilization capability over previous years.

Our concerns with personnel readiness and quality are paramount. In keeping with Congressional and Defense guidance to achieve wartime strengths in the Selected Reserve, we are requesting authority for an average SMCR strength of 40,300 in fiscal year 1984. Approval will provide for planned and programmed growth. Our optimism that the SMCR could achieve wartime strengths by the middle of this decade was validated when it attained 105 percent of the planned fiscal year 1982 end-strength of 38,540, ending the year with a total paid strength of 40,461. Personnel readiness has been augmented by expansion of the Full Time Support (FTS) program with FTS personnel now being assigned to seventeen major commands, including Headquarters, Marine Corps. FTS end-strength is programmed at 801 in fiscal year 1984.

The goals of procuring, issuing, and maintaining combat standard equipment for SMCR training allowances are being met. However, the additional equipment requirements that are programmed to be held at either Albany, Georgia or Barstow, California until required by mobilization are not adequate to satisfy Total Force needs. Fiscal year 1983 procurement funds are being used to reduce these shortages and, assuming that programmed funding levels remain intact, equipment deficiencies will be largely resolved by fiscal year 1988.

During fiscal year 1982 a structure modernization effort was begun to align the 4th Marine Division's structure with that of its active counterparts and to increase the combat service support capability of the 4th Force Service Support Group.

The need for a modern Reserve aviation component is emphasized by the recent tasking of Reserve squadrons to prepare for contingencies previously assigned to active units. Though newer aircraft are programmed for the Reserves, aviation readiness continues to be affected by aircraft shortages, principally in KC-130 refuelers and AH-1 helicopters, as well as the problems associated with aging aircraft.

As the Marine Corps Reserve requirements to augment, reinforce, or provide a MAGTF in support of various worldwide active force contingency missions expand, our efforts to improve Reserve readiness will also expand.

READINESS, TRAINING, OPERATIONAL PERFORMANCE

The Marine Corps remains ready to respond to all assigned missions. Readiness has always been, and continues to be, the highest priority for Marines. Our emphasis on readiness is evident in the array of Marine Air Ground Task Forces which are, at this moment, fully combat ready and prepared for immediate contingency deployment. Forward deployed MAGTFs are the root source of our versatility, flexibility, and readiness.

A key element in the readiness equation continues to be operational performance standards. Our standards remain uncompromising; our individual Marines and combat units would acquit themselves well if required to fight today. As Marines continue to deploy and exercise in all corners of the globe, we continue to emphasize readiness for amphibious operations and subsequent combat ashore. Even before these units deploy, we evaluate their capability to accomplish their assigned missions through the rigorous Marine Corps Combat Readiness Evaluation System. This system objectively evaluates the combat readiness of all active and reserve FMF units.

A second factor is the relationship of new and improved equipment to enhanced readiness. I can report with confidence that our current equipment readiness is the best it has been for many years. Improvements in personnel, equipment, and spare parts have been substantial. However, complete fulfillment of both our readiness and sustainability requirements, in all areas, is most important.

A third factor in the readiness equation is the training of Marines. I am convinced the well trained Marine remains the most important element for success on the battlefield. To ensure that we have the best trained Marines possible, a determined effort must continually be made to improve upon the effectiveness of our training system.

The Marine Corps' training system is designed to train individual Marines and Marine units, both active and reserve, for combat. To maintain our high state of readiness, we continue to emphasize mission-oriented collective training. This training brings together the individual and collective skills of Marines and is directed toward refining the FMF's capability to conduct amphibious landings and subsequent operations ashore as a part of the Navy/Marine Corps team. Our MAGTFs participate in a wide variety of mission-oriented training exercises each year. One such exercise is the combined-arms training conducted by 10 Marine battalions each year at the Marine Corps Air Ground Combat Center, Twentynine Palms, California. The harsh expanse of desert at Twentynine Palms provides a maneuver area sufficient to permit the full integration of our combined-arms, air ground team in realistic live fire exercises. Another example is participation by approximately 10,000 Marines each year in cold weather and mountain warfare training at the Marine Corps Mountain Warfare Training Center, Bridgeport, California. This training center provides an ideal location to train Marines for our strategic roles in the Northern European and Western Pacific regions which have mountainous terrain and cold weather environments.

We also train regularly with our allies. This training fosters a spirit of cooperation with our allied counterparts and allows us to benefit from their particular expertise. Marines receive jungle training with British Royal Marines in Borneo and arctic training in Norway as well as cross-training with our friends and allies globally.

Marine Corps aviation units also participate in a wide range of collective training programs. The electronic warfare/close air support test program conducted with the other Services provides invaluable training and insight into today's high-threat environment. Ongoing participation in Air Force RED FLAG exercises provides Marine crews with a realistic air combat environment. At the Marine Aviation Weapons and Tactics Squadron, located at Yuma, Arizona, Marine crews from our entire aircraft community, along with personnel from other Services, learn to plan and fly in a combat scenario that demands cooperation and coordination.

Success in any of our collective training efforts is directly related to the effective training of our individual Marines. Recruit training remains the fundamental element of our success and is the first step in a program designed to prepare the individual Marine for combat or garrison duty. It challenges our recruits—male and female—to achieve the highest standards of military skills. I believe we succeed in this effort because the challenge of recruit training comes from a series of demanding but attainable performance requirements. Since recruit training is extremely demanding, I require the highest standards from our drill instructors and accept no deviation from these standards. Recruit training continues to receive my close personal attention.

While we will continue to modernize many areas of training, I am satisfied that our programs remain fundamentally sound. I consider training to be a key factor in the combat readiness of the Corps and believe that a well trained Marine is vital to the effectiveness of the Navy/Marine Corps team and the interests of our Nation.

Because of readiness and training, the Navy/Marine Corps team continues to operate as a totally integrated force currently deployed worldwide in support of national policy, demonstrating resolve to our allies, and serving as a major deterrent to potential enemies.

The III Marine Amphibious Force, forward deployed in Okinawa and Japan, provides presence in the far East and is available for rapid reinforcement or response to the Southwest Asia (SWA) region. III MAF assets include the 31st Marine Amphibious Unit (MAU), which is continuously forward deployed afloat in the Western Pacific and Indian Ocean. The Near Term Pre-positioned Force, with 7th Marine Amphibious Brigade equipment embarked, remains strategically staged at Diego Garcia to augment our mobility capability for rapid closure of our forces into Southwest Asia.

Located on the East Coast is II MAF which forward deploys a MAU in the Mediterranean Sea on a continuing basis. This MAU frequently visits the Indian Ocean. Additionally II MAF annually deploys a MAU or MAB to Northern Europe for training and joint/combined exercises, and deploys similar MAGTFs to the Caribbean.

I MAF, located on the West Coast, is tasked with the responsibility for developing plans for deployment and employment of Marine forces in SWA. Moreover, I MAF, in coordination with II MAF, provides combat elements for III MAF on a rotating basis for both deployed MAUs and Okinawa/Japan based forces through the Unit Deployment Program.

The Navy/Marine Corps team has recently exercised in a number of Mediterranean countries; in Europe; throughout the Pacific Ocean area from the Aleutian Islands to Australia; in the Caribbean Sea; and with our friends and allies in South America. This winter, Marines landed in Oman for an amphibious landing exercise and cross-training with the Omanis. These exercises amply underscore the inherent flexibility and capability, both seaborne and airborne, of Marine forces to move to and operate in varied geographic environments and under extreme weather conditions. In addition, Marines have participated in a variety of humanitarian assistance projects and are, as you know, currently participating as part of the Multi-National Peacekeeping Force in Lebanon.

FINANCIAL RESOURCE MANAGEMENT

The financial resources allocated to support the programs and budget items discussed above (and displayed in Tables I and II) represent virtually no real growth in the aggregate over fiscal year 1983. A comparison of fiscal years 1983 and 1984 is contained in Table I:

TABLE I

[In millions of dollars]

Appropriation	Fiscal year—	
	1983	1984
Military personnel—Marine Corps	$1,331.0	$3,462.9
Reserve personnel—Marine Corps	170.9	177.3
Operation and maintenance—Marine Corps	1,469.6	1,575.9
Operation and Maintenance—Marine Corps Reserve	51.1	53.6
Procurement Marine Corps	1,977.4	1,852.0
Marine Corps stock fund	11.8	22.3
Total	7,011.8	7,144.0

The funding requested for fiscal year 1984 finances two main goals: Improved overall readiness and achievement of adequate levels of combat sustainability. The very fact that there are no "new starts" reflects these priorities. To this end, there is real growth in the operations account and stock fund—as I projected in my last report to you. This vital increase primarily supports the operation and maintenance of new items of equipment currently being integrated into the operating forces.

The fiscal 1984 budget request preserves the Marine Corps' reputation for susterity. It has been scrutinized for excesses, not only within the Marine Crops, but also within the Departments of the Navy and Defense. As a result, the Marine Corps' contribution to the maintenance of peace continues to be significant while our consumption of resources remains relatively small. And, as I stated earlier, a more cost-effective investment in national security is not available.

Table II highlights the Marine Corps' fiscal 1984 authorization requests:

TABLE II

[In millions of dollars]

Category	Fiscal year—		
	1983	1984	1985
Avtive duty end-strength	$194,600	$197,300	$199,000
Selected Reserve average strength	40,245	40,300	42,500
Civilian personnel end-strength (USMC portion of DON request)	21,338	[1] 21,618	21,733
Average military student training load, Active	20,204	21,105	21,185
Average military student training load, Reserve	3,070	3,223	3,223
Procurement—Marine Corps	1,997.4	1,852.0	2,172.4
Operation and maintenance—Marine Corps	1,469.7	1,575.9	1,856.1
Operation and maintenance—Marine Corps Reserve	51.1	53.6	58.2

[1] Includes 19,962 O&MMC, 211 O&MMCR and 1,445 MCIF.

CONCLUSION

Having detailed the present and future posture of your Corps, I wish to reemphasize both the maritime imperatives and that which constitutes the essence of the Marine Corps.

The realities of this Nation's economic system, coupled with our geopolitical position vis-a-vis the free world, dictate a requirement for unchallenged maritime strength—a strength that has its foundations in the commercial and industrial institutions of our society. A vigorous shipbuilding industry and a thriving Merchant Marine are necessary ingredients for strong Naval forces and maritime superiority. These, in turn, are vital to the Nation's prosperity, our security, and the maintenance of international stability and peace.

We in the Marine Corps are encouraged that the Congress and the people of the United States support us as we serve to deter aggression and maintain the peace. You may be assured that we will continue to be deserving of that support. You may be equally assured that the Marine Corps will continue to be faithful in fulfilling our most important obligation—the obligation of providing quality leadership to America's sons and daughters.

In the final analysis the Marine Corps is people and we, their leaders, are entrusted with their physical and moral welfare. Your leadership and support have steadfastly provided the means to recruit, train, and equip these superb young men and women. Congressional wisdom and vision have fostered the conditions which permit Marine officers and noncommissioned officers, the role models, if you will, within our Marine Corps family, to continue to instill sound values and those enduring qualities of service, selfless dedication, and patriotism which our Marines will carry throughout their lives both as Marines and as citizens of our Nation.

We are providing America's youth a challenge—and they are responding magnificently. I see it in their faces, I hear it in their words—it is evident to the world in their performance. During the past year, I have visited your Marines around the globe from the Mediterranean to Japan, from Norway to Australia. I can assure you they are as capable and ready as Marines have ever been. They remain faithful to the special trust and confidence placed in them by the American people. The continued support of the Congress will keep them capable and ready. Their spirit and dedication will keep them always faithful.

That concludes my report. Thank you.

Mr. **TOWER**. Thank you very much, General Barrow.

We will proceed with our questioning now with 10 minutes allotted to each Senator for questioning.

I would invite Admiral Foley to comment on any of these questions where his comment is indicated and I am sure it will be with a number of these questions. That is the reason we wanted to get somebody from the fleet in there, somebody out of the cutting edge to give us a firsthand feel.

PAY FREEZE

Admiral Watkins, there is an issue on which I think the majority of the members, perhaps all the members, of this committee are in disagreement with the administration. That is on the matter of a pay freeze. I think it is the conviction of virtually all of us that we must continue what we have begun and actually have a pay increase for the military this year.

I am not necessarily married to, I am prepared to look at alternatives, but I propose a bill that provides for a 4-percent target increase.

I recognize it is the policy to support the administration in the matter of the pay freeze, Mr. Secretary, but I would like to ask Admiral Watkins if indeed the Congress does enact a pay increase, which seems fairly likely to me at the moment, do you believe the target approach is the desirable approach at this time?

Admiral **WATKINS**. Yes, I do.

DECLINE OF COMBAT AIRCRAFT READINESS

Chairman **TOWER**. Thank you, Admiral.

Secretary, this week's issue of the Time magazine asserts, among other things, that the readiness rate for combat aircraft will decline over the next several years.

Would you comment on the accuracy of that assertion and indeed would you comment on the overall accuracy of the article.

Secretary **LEHMAN**. Mr. Chairman, I read that article. I have to say I was amazed that a journal of record would print an article with so many baldly false facts, quite apart from the rather zealous editorial positions the news article took.

It is simply wrong on some of the most fundamental points. It says, to take just one of a great many examples, that we procured only 6 ships last year when in fact we procured 40, and ascribing certain contract abuses, that took place 10 years ago, as if they are taking place now, and a great many others.

I will be happy to submit for the record a correction of the factual errors in that article.

Chairman **TOWER**. I think it would be interesting to have that, Mr. Secretary, in that so many people get their defense information from such journals as Time, CBS, and so forth. I think we should hear the other side because I feel that the mass media are not giving us a balanced presentation of what is going on.

Secretary **LEHMAN**. It is one thing when the editorial position takes a hardened position as this did, but it is quite another to be putting out for general consumption very sloppily researched basic data, and facts.

I will be happy to correct that for the record. My editorial disagreement, I need not provide for the record.

[The information follows:]

The attached background paper on Navy issues from an article which appeared in the March 7, 1983 issue of Time magazine is forwarded.

Navy Issues From March 7, 1983, Time Article on Defense Spending

ARTICLE OVERVIEW

Article supposedly based on PA&E analyst Spinney's presentation to SASC at end of Feb.

Bulk of items raised are not from Spinney's pitch.

Many are from Heritage Foundation Jan. 1983 article by George Kuhn.

Main points made by article:

Use of "learning curve" in cost estimating for major contracts is wrong and leads to cost overruns. (Spinney)

Opting for high-tech, high-cost systems at expense of quantity is wrong (Spinney-1980).

Need more competitive bidding on contracts to save money.

Conslusions

Cost overruns, high tech vice quantity, and failure to meet design specs impede attaining the desired defense buildup.

STATEMENTS IN ARTICLE

Navy retiring 22 ships this year to free funds for only six new ships—Net loss—16. 19 of the 22 (86 percent) were recently overhauled (1, 2).

Validity/Remarks:

Misleading and factually incorrect.

Retirements were result of Congressional direction to reduce fiscal year outlays, not tied to new ship production.

In fiscal year 1983, Navy will decommission 19 ships (aged 23-28 years) and will add 21 ships (18 new construction, 3 conversion)

Most of the 19 being retired were scheduled for retirement prior to fiscal year 1988, were never counted in 600-Ship Navy.

Only 7 of 19 (37 percent) were overhauled within last two years. Many had maintenance problems as documented by UMIs.

Steaming days being cut from 44/quarter to 40/quarter to free funds for SCN. (3)

Validity/Remarks:

Numbers correct, reason wrong. Reflects reduction of IO CVBG from 2 to 1; FLEXOPS decision.

Secondary purpose was to reduce fiscal year 1983 outlays, not to free funds for SCN.

40 days/qtr average is adequate to maintain readiness and meet commitments. (Note: Navy no longer programs steaming hours fleet wide. Separate figures used for deployed/non-deployed).

Spinney: "Learning curve" is not applicable to unit cost estimation due to numerous design and production rate changes during the buy. (4)

Validity/Remarks:

Correct. Design changes and production rate/buy size changes do disrupt the learning curve.

Navy has taken aggressive action to limit design changes during production.

Many production rate/buy size changes are dictated by Congressional restructure of Navy programs, beyond Navy's effective control.

Learning curve does exist when program stability exists.

Spinney: Defense budget may be underfunded by up to 30 percent due to improper cost estimates. (5)

Validity/Remarks:

Historically was true, principally because of appropriation adjustments causing program stretch out, incorrect inflation projections and numerous design changes, none of which were planned for in estimates.

Not currently valid due to aggressive recent action to control cost and improve estimates. Control of cost growth is major Navy objective.

Navy has initiated over 30 management actions to reduce cost growth and improve estimates, including competitive contracting, firm fixed price, strict design change controls, improved in-house cost estimating.

F/A-18 price has gone from $9.9M to $30M each. (6)

Validity/Remarks:

Misleading. Not stated in constant $. Initial price, stated in fiscal year 1984 dollars, is $21M. Price has grown 42 percent in 8 years, and actually decreased during 1982 due to contract renegotiation.

F/A-18 combat radius is 390NM, half of A-7s. (7)

Validity/Remarks:

Incorrect. F/A-18 strike radius is 450NM unrefueled, which meets the Navy's operational requirements.

F/A-18 air to ground radar is grossly inaccurate (8)

Validity/Remarks:

"Grossly" is overstatement. Remark refers to only one mode.

The F/A-18 real beam ground map radar operation is not as accurate as the doppler beam sharpening mode, a highly accurate mode of F/A-18 radar which outperforms all current systems and is the mode routinely used in weapons delivery.

In Vietnam, Sidewinder got 24 percent hits, Sparrow only 8 percent. (9)

Validity/Remarks:

Approximately correct, but data 10+ years old.

Sparrow has undergone 3 major upgrades since then, Sidewinder, 4. Both missiles are much improved.

Most engagements occur inside Sparrow's minimum effective range. (10)

Validity/Remarks:

False. Aerial duels do not begin inside Sparrow's minimum range but transit successive missile employment zones. Which weapon is used and at what range depends on numerous variables.

Spinney: "High tech" solutions and combat readiness are mutually exclusive. (11)

Validity/Remarks:

Not true. Must look at the threat, which is becoming increasingly capable.

Cheaper, obsolescent units cannot fight and win against the Soviets' best.

Modern Israeli aircraft achieved very high kill ratio in Lebanon versus older low-tech Soviet models.

High tech ships require far fewer sailors per ship, which saves $.

Lack of sophisticated surveillance and ASMD defense contributed to heavy ship losses/damage for RN in Falklands.

$18,000 spent for wardroom sofa in U.S.S. *Kidd.* (12)

Validity/Remarks:

True. Actual bill $14,000.

Cost exceeded normal expectations.

Judgment/oversight remiss.

Corrective action initiated.

Final 5-10 percent improvements in system performance add 20-50 percent to system cost. (13)

Validity/Remarks:

True. While not accurately quantifiable, premise is correct.

Whole purpose of Navy cost-benefit analysis is to find the point on this curve that gives acceptable results at acceptable cost.

CG-47 never tested in simulated combat conditions against low-flying missiles. (14)

Validity/Remarks:

Not true.

CG-47 not extensively tested, haven't even "got the wrapper off" yet. Ship is brand new.

AEGIS has been extensively tested against low altitude, high speed, dense raids—in Norton Sound.

65 missiles fired at sea, including targets down to 50 feet.

Pentagon accepts unreasonably low cost estimates to "buy-in", knowing price will go up later. (15)

Validity/Remarks:

Historically true.

Navy management taking action to increase cost realism to reduce this possibility.

More fixed-price, competitive contracts and contractors bearing risk of cost increases are long-term answers.

So far in fiscal year 1983, over $500M have been saved in SCN due to competition for shipbuilding contracts.

Less than 10 percent of weapons contracts subject to competitive bidding.(16)

Validity/Remarks:

True. Increasing number of competitive contracts is major Navy effort. Improved by 27 percent in fiscal year 1982.

Planned ammo buildup has not been accomplished. (17)

Validity/Remarks:

Significant ordance shortages remain.

Annual ordance investments doubled 80-84, programmed to double again in FYDP.

Will remain below objective through fiscal year 1989, but will improve markedly.

DOD has shifted funding from O&M/PERS to procurement over fiscal year 1982-88. (18)

Validity/Remarks:

True/natural. Increasing dollars to procurement reflects buildup of Navy's size. O&M increases lag procurement increases.

600 Ship Navy is affordable and supportable with programmed O&M/MPN resources.

ADM Richover has estimated CV will only last 2 days in all-out nuclear war. (19)

Validity/Remarks:

Inaccurate. Navy analyses indicate that while losses will be heavy in many scenarios, the CV can and will survive in an all-out war.

Navy kept CV away from Iran during hostage situation to avoid having it sunk. (20)

Validity/Remarks:

False, CV's were kept offshore to avoid direct contact with Iranian forces and possible escalation to armed conflict, not because of survivability.

This mobility and "flexible response" is the CV's strong suit in defusing crises.

$96B FYDP buildup of surface ships will result in only 70 more attack planes into area of hostilities. (21)

Validity/Remarks:

Misleading and inaccurate. Buildup to 600 Ship Navy gives far more than just more attack aircraft on station.

Battleship SAG's peacetime presence, SLOC protection, sea control missions and many others benefit from larger Navy.

Dual source procurement could save money. (22)

Validity/Remarks:

True, but primary purpose of dual source procurement is to broaden industrial base. In theory, dual source should initially cost more due duplicated overhead with two production lines.

In practice, long run price goes down due to competition between the contractors.

R&D groups should not also have responsibility for testing the system they develop. (23)

Validity/Remarks:

USN has separate command (OPTEVFOR), reporting directlty to CNO.

OPTEVFOR's objectivity has been complimented within DOD and Congress.

JCS reform needed to permit it to fairly balance the services dollars needs. (24)

Validity/Remarks.

Major separate issue, discussed at length repeatedly.

Navy negotiated contracts for 13 T-AKX, agreeing to reimburse builders if they lose a tax debate with IRS. (25)

Validity/Remarks:

True. This type of contract, common in the commercial world, was determined to be the least expensive way of obtaining required counsel.

Contract closely examined by Navy counsel. Determined to be legal, with very low likelihood of Navy incurring additional obligation due to IRS Navy incurring additional obligation due to IRS rulings.

[From Time Magazine, March 7, 1983]

U.S. DEFENSE SPENDING—ARE BILLIONS BEING WASTED?

THE WINDS OF REFORM

Runaway weapons costs prompt a new look at military planning.

Item: The army decided to build a light antitank bazooka at a cost of about $75 each. But once all the designers and program directors had finished tinkering, the weapon ended up costing $787. Even so, it would be hard pressed to knock out a modern Soviet tank. Reason: its shell cannot pierce the tank's forward armor. Congress tried to kill the project, but there is still money for it buried in the Pentagon budget.

Item: Allowing for inflation, the Army is spending the same amount of money ($2 billion in 1983 dollars) on new tanks as it did 30 years ago, toward the end of the Korean War. But the number of tanks produced has declined by 90 percent from 6,735 to 701. In 1951, 6,300 fighter planes were funded by the military at a cost in

1983 dollars of $7 billion. The U.S. is now spending $11 billion to build only 322 planes, 95 percent fewer than in 1951.

(1, 2, 3) Item: The Navy is budgeting for six new ships this year. To afford them, it is mothballing 22 older ships, many of which were recently overhauled, because it must cut operating and maintenance costs. For the same reason, it is reducing the sailng time of its ships by 10 percent from 1982 to 1984. with its net loss of 16 ships, the Navy would appear to be sailing full speed astern in its effort to build a 600-ship fleet.

He came blinking into the brilliant glare of the television lights, and obscure Pentagon bureaucrat suddenly brought before the eyes of two powerful committee chairmen, a dozen Senators, eight television cameras and scores of lobbyists from companies with contracts to build new weapons systems. Even though it was Friday afternoon, at time when most members have either headed home or gone out to compaign for President, the special hearing called the Senate Armed Services Committee last week was packed. The object of interest; a young bureaucrat who had finally been freed from his drab office on the second floor of the C-ring of the Pentagon in order to present his maverick assessment of the underlying problems of defense planning and weapons procurement.

Franklin ("Chuck") Spinney, 37, a quite but dogged Pentagon analyst, thus became the unlikely hero of an intensifying reform movement that is challenging the way the defense Establishment does business. At issue is an entire philosphy of military spending that has governed Pentagon practices for a quarter-century. At stake may be the nation's ability to defend itself for the next quarter-century.

In a flat, earnest voice, aiming his pointer at charts and graphs projected on a small screen, Spinney explained how the costs of high-technology weapons inexorably race out of control. "There is a systematic tendency to underestimate future costs," he said. "Deep-seated structural problems need to be addressed." Within the building where he has worked for ten years, Spinney noted, "everybody is fighting to save their programs." His words often lapsed into Pentagon jargon, but his point was clear. "Planners become desensitized to cost growth over time."

(4) His two-hour presentation of case studies meticulously demonstrated that basic cost assumption made by the Pentagon—that the price of each new weapon will significantly decrease as soon as it is being produced at an efficient rate—is fundamentally flawed. "When we predict long-term price declines, we assume design stability," he said. In reality, the cost of high-tech systems invariably skyrockets because of unrealistic initial estimates, obsessive design changes and erratic production rates. "Our plans have got to take into account that instability."

"Do all your charts show the same thing?" asked Senator Howard Metzenbaum of Ohio, as the relentless catalogue continued. "I think you want to see some more, sir," Spinney replied with a burning intensity. "This is important."

David Chu, Spinney's boss, who had tried to prevent him from testifying, sat next to Spinney at the felt-covered witness table and listened warily. When it came his turn to speak, Chu argued that Spinney's analysis did not really apply to the Reagan defense budget. Said Chu: "Those charges ignore the various steps this Administration has taken . . . to deal with these problems on a systematic and decisive basis. I urge patience." Did Spinney agree, Senators asked, that the initiatives taken by the Administration would bring costs under control? Spinney was cautious about criticizing his superiors. Said he: "The 1984 pattern appears to be the same."

"I'm shocked," said Senator Charles Grassley of Iowa. "Not only do we have a budget problem, but a major problem of national defense." Grassley had led the fight to hold hearings on Spinney's analysis. After learning of the study, the conservative Republican called Defense Secretary Caspar Weinberger and asked to meet with its author. To Grassley's surprise, Weinberger refused. So the Senator got into his car and drove out to the Pentagon to find Spinney. He was met there by Chu, director of the Program Analysis and Evaluation office, who told him that Spinney would not be available to give any briefings.

Senator John Tower of Texas, chairman of the Armed Services Committee, also wanted to keep the controversial analyst under wraps. But Grassley persuaded his fellow Senators to schedule a hearing, they also threatened to subpoena Spinney if the Pentagon refused to let him appear. Tower tried to downplay the appearance by setting it for late Friday afternoon. He also wanted to hold it in a small committee room and ban television cameras. That way he hoped to confine daily press coverage to the lightly read Saturday newspapers. But pressure from other Senators forced Tower to move the session into the cavernous Senate caucus room, where the Watergate and McCarthy hearings were held, and to allow cameras.

(5) The crux of Spinney's analysis, titled "The Plans/Reality Miscatch," is that the Administration's $1.6 trillion military buildup (which would amount to $20,000

for each U.S. household over the next five years) is liskely to be underfunded by as much as 30 percent. This means that unless major new weapons are eliminated or other drastic changes made, the final bill may be $500 billion more than expected. The lastest findings are a sequel to a 1980 Spinney report, "Defense Facts of Life," which argued that the pursuit of complex technology has resulted in the production of weapons that are high in cost, few in number and questionable in effectiveness. That analysis gave impetus to the incipient military-reform movement, but had little impact within the Pentagon.

Indeed, the military brass has taken to Spinney's findings like ducks to buckshot. "He is a lousy system analyst," says Under Secretary of Defense Richard DeLauer, who oversees the purchase and development of weapons. "His work is purely historical," Weinberger told Congress last month. Neither man has met the rebel. In fact, a week after dismissing Spinney's latest study, Wienberger turned to DeLauer at a staff meeting and asked, "Spinney's work is historical, isn't it?"

President Reagan's election was in part a mandate to restore America's military might. The ensuing debate has been over the size of the much needed buildup: whether military spending should rise by 7 percent after inflation, as Reagan proposes, or closer to 5 percent, as President Carter and others have urged. Now the spreading suspicion that bills are being wasted is chipping away at that consensus. Most of the attention thus far been focused on apocalyptic strategic issues: How can we best deter or fight an all-out nuclear war? Should we deploy new MX missiles in the U.S. and Pershing II misiles in Europe? But only 9 percent of the U.S. defense budget is spent on nuclear deterrence; the rest goes to the material and manpower to fight conventional battles and prevent them from escalating into nuclear exchanges.

Now the debate is shifting to more fundamental issues. What Spinney's briefing clearly shows is that attention must be paid not only to how much is spent, but how it is spent. According to his sobering analysis, the Administration's proposed buildup presents funding problems that go well beyond the question of how to shave $10 billion or $15 billion from this year's budget. The traditional methods of assault—whittling away at frills, stretching out weapons purchases, skimping on maintenance money—will be as futile in the short run as they are wasteful in the long run. In a windowless office in the basement of the U.S. Capitol, where 18 congressional staffers known as the "bean counters" scratch for potential savings in the defense budget, a small sign on the wall sums up the dilemma: a billion dollars just doesn't go as far as it used to.

Enter the military reformers, a group essentially composed of several young Senators, Congressmen, independent research groups and a few Pentagon insiders like Spinney. The reform movement has attempted to focus attention on the need to build weapons that will work and to develop doctrines that are adaptable to fighting the battles of the future. It has also addressed the widespread evidence of waste and mismanagement in military spending, whether for major strategic systems like the B-1 bomber on basic weapons such as tanks and rifles. The reformers argue that new systems should be carefully examined not only for what they can do on paper, but what they can do in actual combat—and at what cost. The central question: how to get more bang for the buck.

Among the early reformers were two of Spinney's former mentors in the Pentagon bureaucracy, Air Force Colonel (Ret.) John Boyd and Research Scientist Pierre Sprey. It was the lobbying of Boyd and Sprey for simpler, more maneuverable weapons that made possible the development in the early 1970s of the F-16 fighter jet, an effective and affordable complement to the expensive F-15.

Today the military reform movement has gathered support from all sides of the political spectrum. The Hertigage Foundation, a conservative Washington think tank, published last month an unsparing critique of Pentagon management, arguing that complex technology is not only busting the budget but detracting from the military's ability to fight. "Tactics have been driven by technology," wrote former Army Captain George Kuhn in the report. "The evidence suggests that complex technology is usually relatively ineffective." The Council on Economic Priorities, a liberal research group in New York, also released a study of weapons procurement last month that zeroed in on the Pentagon's continuing inability to control costs. The Project on Military Procurement, run by Analyst Dina Rasor, is an independent research group in Washington that has worked to draw attention to massve cost overruns and technological failures in weapons systems.

The best way to understand the interrelated problems that the reformers hope to tackle is by examining the haphazard method by which weapons are chosen, tested and funded. The lack of coherence in the process can be seen through a simple example: the way money is spent for close air support. American and NATO defense doctrine hinges on effective close air support; the Soviets invade Central Europe, the U.S. Army's M-60 and new M-1 tanks comfront them, and the U.S. Air Force is called upon to coordinate bombing and strafing attacks on enemy artillery and tanks. "Close air support is the single most important air mission of maneuver warfare," says Sprey.

The fundamental problem with close air support is that the Air Force does not like the subservient task of aiding Army troops. It provided that service grudgingly during the Viet Nam War, preferring the glory of long-range bombing runs an dogfights with MiGs. Only in the last decade has the Air Force produced a good close-support plane, the A-10, which can fly slowly enough to find enemy tanks, is sturdy enough to take hits, and is capably armed with a simple and effective 30-mm cannon. Tactical Air Command pilots ridicule the A-10, joking that they fear being hit from the rear by birds. In recent years, the Air Force has tried to delete the plane from its budget.

Enter congressional policies. This Senate last year eliminated funding for the A-10, using the money instead for more F-16s, a faster plane that the Air Force favors but which is not suited to close air support. (It is built in Texas, home state of Armed Services Committee Chairman Tower.) But the House voted to keep the A-10 alive. Defense Appropriations Subcommittee Chairman Joseph Addabbo of New York, who is usually eager to cut military spending, is a strong proponent of the plane. (It is built on Long Island, within commuting distance of his home district.)

Enter the White House. Instead of supporting the Air Force and Republican Tower, it comes down in favor of Democrat Addabbo. Why? To win the votes of Long Island Congressmen last August for Reagan's tax increase, the White House promised to buy 20 more A-10s. At this inefficient production rate, the price of the plane has jumped from $5.9 million apiece in 1975 to $18 million (more than an F-16) in 1983.

In the meantime, the Army decided to get its own close air support. But by law only the Air Force can build fixed-wing aircraft. The solution: develop a helicopter for the mission. The Army did, the Cheyenne. Unfortunately, helicopters are fat and vulnerable targets for ground fire. In the late '60s, the Army tried to make the Cheyenne maneuverable yet adequately armored, in the process boosting the cost to $7 million, more than that of a sophisticated fighter jet at the time. But no amount of money could turn a sitting duck into a soaring eagle. So the Cheyenne program was dropped in favor of the AH-64 Apache helicopter. The cost overruns on that project have forced up its price from $9 million to $17 million per chopper (more than an F-16 figher) and even the Army balked at paying the builder, Hughes Helicopters. The apache also has a characteristic that its pilots find disconcerting. To fire its laser-guided missile the Ah-64 has to hover motionless in the open for up to 30 seconds, a difficult and dangerous business.

The AH-64 would be an expensive machine to lose in combat, so the Army began searching for a cheaper, smaller scout and observation chopper. It settled on the OH-58 Kiowa. The contractor, Bell Helicopter, apparently followed the time-honored practice of "buying into" a contract by submitting an artifically low initial estimate. Within two yers, the projected cost of the total scout program doubled, from $1.3 billion to $2.7 billion, even though the number of aircraft to be bought was reduced from 720 to 578. Part of the problem is that the scout's complex laser sight has run into development problems, and new stabilizing devices may be needed to make it work. What is more, the Army is considering adding sophisticated new missiles. Congress is upset because the price of the "affordable" helicopter has now more than doubled to $4.6 million apiece. But instead of killing the program, it decided instead to cut the funding this year by 30 percent, and the Army decided to stretch out the production time. That will reduce the manufacturer's efficiency and make the program more vulnerable to inflation. Hence the unit cost will continue rising.

Another classic case of waste and confusion involves the Viper antitank weapon. Ten years ago, the Army dedcided to provide infantrymen with cheap, light antitank bazookas. The Vipers were projected to cost about $75 apiece, but design changes began almost as soon as the weapon was proposed. The weight, it was decided, must be reduced to less than seven pounds. This meant the warhead had to weigh less than a pound, which sharply limited its potential destructive power. The size of the rocket motor was also redcued to cut blast noise. By the time the contractor finished redesigning it, the Vipers cost not $75, but $787 apiece. Worse yet, the scaled-down warhead could no longer penetrate the front armor of modern battle tanks nor stop Soviet tanks head-on. The Kafkaesque solution: if the weapon will not do what it is supposed to do, redefine its mission. The Army decided the Viper should be used to snipe at tanks from the side or the rear, however limiting that might seem to a soldier in the field.

Even Congress, which is usually tolerant of procurement high jinks, was appalled by the Viper debacle. So the lawmakers cut the program last year. But is it dead? Buried in the 1983 Defense budget is $10 million for testing a light antitank system. The 1985 budget authorizes $122 million to purchase the first weapons. Like many discredited weapons systems, the Viper is a Lazarus.

(11) A slavish devotion to the latest high technology is perhaps the most basic cause of problems in the weapons-buying process. It results in massive sacrifice in the quantity of arms to achieve what seems on the surface to be improvements in quality. "The fallacy of the past 40 years has been that technology will save us," says the Heritage Foundation's Kuhn. The trend toward relying on high-tech weapons to offset the numerical advantages enjoyed by the Soviet bloc accelerated during the tenure of Robert McNamara as Defense Secretary and has led to a bureaucratic infatuation with "gold plating" every new system. Spinney's seminal 1980 report concluded with the warning: "Our strategy of pursuing ever increasing technical complexity and sophistication has made high-technology solutions and combat readiness mutually exclusive."

(1, 2, 3) The 90 percent decrease in tank production and 95 percent drop in fighter-plane construction over 30 years is only the most obvious manifestation of the huge sacrifices of quantity being made to achieve technological sophistication. The Navy's decision to retire 22 ships this year starkly illustrates the dilemma. It placed the ships in mothbals in order to comply with a congressional order that it trim the sails of its 1983 spending. But the Navy did not want to cut planned procurement of new ships. Of the 13 *Forest Sherman*-class escort destroyers that were retired, twelve had been extensively overhauled within the past two years. Of the four *Decatur*-class guided-missile destroyers retired, three had been recently overhauled. Even some Navy fleet commanders were dismayed by the retirement of five landing-dock ships (four of which had recently been overhauled) that are essential for quickly moving troops to trouble spots. This was done to keep just one new landing-dock ship in production. The new landing dock has no real advantage over the five being retired. Total savings from the 22 retirements: $249 million. Eventual cost of the five ships preserved by the move: $4.4 billion. "[Navy Secretary John] Lehman is not interested in achieving the 600-ship fleet," says a critic. "He just wants to build ships."

Norman Augustine, a former top Pentagon official and currently president of the Martin Marietta Aerospace division in Denver, has published a set of tongue-in-cheek maxims about military spending. He contends: "From the days of the Wright brothers' airplane to the era of the modern high-performance fighter aircraft, the cost of an individual aircraft has unwaveringly grown by a factor of four every ten years." Thus his Final Law of Economic Disarmament: "In the year 2054, the entire defense budget will purchase just one tactical aircraft."

Defenders of the system obviously claim that the quantitative decline in weapons has been offset by the qualitative advances in performance. No doubt the new M-1 tank, at least on paper, is faster and more powerful than the M-60 tank now in use. But the same amount of money could buy three times as many of the reliable M-60s as the problem-plagued M-1s, a ratio that might strike battle commanders as quite attractive. Sprey, the former Pentagon official, argues that this bype of numerical gain could come by buying cheaper rather than super-expensive weapons for a variety of specific missions. For hunting tanks, five times as many A-10 planes could be bought for the same money as F-15Es. For ground-to-air defense, the same outlay would buy 30 Oerlikon 35-mm guns for every DIVAD, the new and troubled computer-guided artillery. For antitank warfare, 30 times as many 106-mm recoilless rifles could be bought as TOW missiles. A comparison of antitank ammunition shows that the unproven Maverick, an air-to-ground missile with heat-seeking sensors, is 75 times as expensive as reliable 30-mm shells.

Defenders of the new weapons say this is like comparing apples and oranges, since the advanced armaments are either more powerful or versatile than the simpler ones. But reformers like Sprey, Boyd and Rasor argue that in many cases the simpler weapons are actually more effective. The F-16 fighter jet was developed as a leaner sister to the F-15, which is loaded with high-powered radar and weapons guidance systems. Because the F-16 is smaller, less dectable and gives off less exhaust smoke, it is more capable of catching the enemy by surprise. It also has a sizable advantage in maneuvering during dogfights because of its quicker acceleration, better rolling ability and longer flight time. At half the price, twice as many can be deployed. Likewise, the M-60 compares well with the expensive M-1: breaks down five times as much and must refuel 40 percent more often; it is available for combat only half as often, which when added to the 3-to-1 price differential means that six times as many M–60s can be placed in battle for the same price.

(13) The pursuit of the latest "bells and whistles," as high-tech frills are called in the military, is a major factor in producing massive cost overruns. The technological tinkering also causes production delays, pushing up inflation costs. Getting a final 5 percent to 10 percent improvement in performance can raise the cost of a weapons system by anywhere from 20 percent to 50 percent, according to Jacques Gansler, former Deputy Assistant Defense Secretary for material acquisition. Augustine's Law of Insatiable Appetites puts it more bluntly: "The last 10 percent of the performance sought generates one-third of the cost and two-thirds of the problems."

(23, 14) A crucial institutional problem in procurement is that the testing of a new weapon is handled by the same Pentagon brass and bureaucrats who are responsible for its research and development and who are likely to be the most anxious to see that it is funded and produced. This leads to field-testing standards that bear little resemblance to combat. The Maverick antitank missile, for example, is being tested by pilots who know both the terrain and target locations ahead of time. The expensive ($1 billion apiece) Ticonderoga-class guided-missile cruisers equipped with the AEGIS air-defense system have never been pitted in simulated combat situations against low-flying missiles like the Exocet. When the Army's new DIVAD-system air-defense gun, called the Sergeant York, was unable to hit maneuvering planes, it was tested instead on hovering helicopters. The Army says that is now the gun's main function, even though it does not fulfill that task particularly well.

There is nothing wrong or unusual about experimental weapons flunking field tests. Indeed, that should be the purpose of the tests; to weed out weapons that do not work. In the Penatagon procurement process, however, tests are often a formality. Production funds for such weapons as the Maverick and DIVAD are locked into the budget even before their testing has been completed.

(15) The symbiotic ties between the military and defense contractors, reflected in the revolving door that allows top officials of the Penatgon to go to work for the firms they dealt with, drives costs still higher. In addition, stars and bars are awarded for pushing a major project to completion, whatever the price. "No one ever gets promoted for killing a project," says one analyst. Thus it is no surprise that Pentagon officials wink at the unrealistically low cost estimates initially submitted by contractors. These fanciful figures are needed to get a green light from Congress; the price escalates to its true level after the funding commitments is secure. The inevitable overruns are disingenuously blamed on inflation or the need for design changes to meet new threats.

(25) An example of the cozy relationship between the Pentagon and contractors was revealed last week: the Navy has negotiated contracts for 13 cargo ships under which the Government will compensate the builders in the event they lose a dispute with the IRS over a questionable tax deduction. The Navy claims this is a standard charter contract procedure.

Less than 10 percent of contracts for weapons are subject to stringent competitive bidding; the Defense Science Board has said that competition might lower costs by as much as 20 percent on an average contract. "You obviously can't compete on aircraft carriers," says Sprey, "but there are thousands of other programs that would benefit if competition, one of the basic forces of the marketplace, were allowed in."

(16) As it is, major defense contractors are all but impervious to market forces. In most respects, they are monopolies. They are assured a predetermined profit, a minimum of 5 percent and usually 12 percent and up over their costs. Since their contracts are long term, they are guaranteed business for years at a time. Once a weapons system is in production, they rarely face competition from another manufacturer. There is limited incentive to hold down overhead. Defense industry labor costs, for example, are generally higher than those in comparable industries. Says one Pentagon analyst: "Many of our defense contractors would go belly up if they had to operate in the real world."

In 1981, Frank Carlucci, who resigned as Deputy Defense Secretary last year, initiated 32 well-publicized procurement reforms designed to control costs. Their object is to make production schedules more stable and cost estimates more reliable. So far they have failed to have much impact. Says Gordon Adams of the Council on Economic Priorities: "The Carlucci initiatives don't even begin to get near the problem and in many cases may actually exacerbate it."

Carlucci's reforms have helped contractors by introducing multiyear contracts and fixed production rates. This has been done without forcing the contractors to bid competitively for projects (although that was one of the proposed initiatives) and without reference to the contractors' past performance. For example, Lockheed Corp. and Rockwell International Corp., both contractors with long histories of inadequate cost controls, have been given exclusive contracts to build the C-5B cargo plane and the B-1B bomber respectively.

(3,17) The inability of the military to control weapons costs is creating a severe shortage of funds for operations, maintenance and readiness. Some disturbing consequences: The availability rate of battle-ready fighter planes will decline in the next five years. The Navy is cutting the steaming time of its ships from 44 days per quarter year in 1982 to 42 days per quarter in 1983 and 40 days per quarter in 1984. The Pentagon's planned buildup of ammunition stockpiles has not been accomplished. A maintenance backlog that was supposed to be cleared up this year will last at least until 1985.

Spinney points out that the military continually underestimates the maintenance required for its super sophisticated weaponry. The Air Force projected in the mid-'70s that the advanced F-15 fighter would require eleven maintenance man hours per flight hour and that the mean time between systems failures would be 5.6 hours. In 1980, the plane required 27 man hours of maintenance per flight hour, and the time between failures was a shockingly low 1.2 hours. The complex automatic testing circuits now being used in tanks and planes were supposed to be more than 95 percent reliable. They turn out to be less than 60 percent reliable. A review by the Defense Science Board in 1981 is blunt in its criticism of such built-in electronic testing devices: "While these promises looked good on paper and were incorporated into almost all specifications, the actual field performance has been nothing short of a disaster."

(18) Despite these problems, Reagan proposes to increase funds for weapons purchases twice as fast as funds for operations and maintenance. The 1985 budget for operations and maintenance is about the same as Carter had projected, even though allocations for weapons procurement are 50 percent higher than Carter's totals. Spending for operations and maintenance will decrease from 32.6 percent of the Defense budget in 1982 to 27.3 percent in 1988, while the share of funds for procurement will jump from 23.7 percent to 31 percent. Funds for personnel costs will decline from 31 percent to 19 percent of the budget.

If the Pentagon has underestimated the costs of weapons now in the pipeline—and Spinney presents overwhelming evidence that they have—then the readiness crunch will be even worse. When the big bills come due, many of the overruns will likely be paid out of operations and maintenance funds. Under Secretary DeLauer has suggested that the military could cope with this by, for example, using the M-1 tank less extensively for maneuvers than the M-60. "If the tanks are sitting around in a garrison, you're not going to spend that much," he says. But Major John Meyers, an Army spokesman, disputes this solution, saying that the M-1 will have to be used more frequently than the M-60 because the Army will have far fewer of them.

In Congress, a loosely knit "reform caucus" of 50 members, ranging from conservative Republicans to liberal Democrats, has tried to steer a course between the hawks, who would give the generals whatever they request, and the doves, who are dedicated to beating all new weapons into food stamps. "Our emphasis is not on where we can cut, but where we can replace with something more cost effective," says Democratic Senator Gary Hart of Colorado, one of the group's founders. Among the leading members are Democratic Senators Carl Levin of Michigan and Sam Nunn of Georgia, Republican Senators William Cohen of Maine and Warren Rudman of New Hampshire, and Republican Congressmen Newt Gingrich of Georgia and William Whitehurst of Virginia.

So far the caucus can point to few, if any, substantive accomplishments. One reason is pointed out by Senator Tower, an ardent defender of the military Establishment: "If you got the reform group together and started going through specific programs, you couldn't get them to agree on any of them." Another reason is that the reformers are as susceptible as any member of Congress to seeking pork for their constituents. Whitehurst rejects the reformers' suggestion that two new nuclear aircraft carriers are unnecessary, they are being built near his Norfolk, Va., district. Nunn defends Lockheed's controversial C-5 transport planes; they are made in Georgia. When the Senate approved funding for three AEGIS-system cruisers, it decided to split the work between two shipyards. One of the lucky shipyards happened to be in Maine, home state of Reformer Cohen, chairman of the seapower subcommittee.

Indeed, the scramble for goodies for the folks back home often seems to be the overriding concern of many members of Congress. Even those doves who argue most for defense cost have their pet interests: House Speaker Tip O'Neill and Senator Edward Kennedy support the F-18 because its engine is built in Massachusetts: Senator Alan Cranston supports the B-1 because its prime contractor is based in California; Senator Carl Levin supports the M-1 tank, built in Michigan; Senator William Proxmire, who likes to hand out "Golden Fleece" awards to others, added $100 million to defense budget last year by winning approval for a new mine-sweeper to be built—where else?—in Wisconsin.

By the time the cost overruns begin and tests show that high-tech wonders are low-success blunders, Congress is hooked on the project. "Once on the drawing board, these weapons build a constituency . . . the weapon develops a local chamber of commerce," says Arkansas Senator David Pryor, who tried and failed to shoot down the misguided Maverick missile. The Pentagon knows how to exploit this weakness. Parts of the B-1B bomber, for example, are now being built in 47 states and 400 congressional districts. When Congress considered cutting a proposed nuclear aircraft carrier, the Navy sent representatives to every Congressman whose district might get a contract to stress the number of jobs that could be lost.

One solace is that the Soviet military, which has been trying to close the "technology gap" by building more complex weapons, is falling into some of the same traps. As Defense Analyst Andrew Cockburn writes in his forthcoming book "The Threat: Inside the Soviet Military Machine," "The Soviet Air Force is now busily imitating [Western] 'advanced technology' systems, including all-weather radar and complex 'look-down-shoot-down' systems—the same features that have made American fighters so expensive and unreliable." The Soviet T-72 tank, Sprey notes, is slower than the American M-60, breaks down 50 percent more often, is highly flammable, and uses an unreliable ammunition loader. The "advanced" MiG-23 fighter plane is less effective than an F-16 because it is bigger, smokes heavily and is far less maneuverable.

A root cause of weapons waste in the U.S. is the absence of clear guidance from the top about where and how America should be prepared to fight. "If you don't know what you want to do, you can't plan how to do it," says John Collins, senior defense specialist for the Library of Congress. The defense guidance report produced by the Pentagon often seems to be a web of rationales for buying all possible wonder weapons. "It does little to set meaningful priorities," says General David Jones, former chairman of the Joint Chiefs of Staff. As Edward Luttwak, a conservative analyst, writes: "In lieu of strategy at all levels, we have only budgeting, programming and politics."

(19, 20) Indeed, weapons often seem to dictate strategy, rather than the reverse. Critics cite Navy Secretary Lehman's goal of building a 600-ship Navy. "What is termed strategy is a mere collection of justifications for more ships," says Steven Canby in his paper "Military Reform and the Art of War." At the core of the naval building plan are two new $3.5 billion nuclear aircraft carriers, the heart's desire of every admiral, and the supporting ships they require. Advances in missile warfare make these surface ships far more vulnerable. Retired Admiral Hyman Rickover has estimated that carriers would survive only two days in an all-out nuclear war, the Navy reportedly refused to station one off the coast of Iran during the hostage crisis for fear it would be sunk. Yet the Navy justifies its desire for 15 carrier groups as necessary in case of a major war with the Soviet Union. The entire $96 billion five-year buildup of surface ships would only result in 70 more attack plans being available to project American might.

(21) Part of the problem with overall U.S. strategy, reformers say, is that it is based too much on attrition warfare, relying on heavy weaponry and long supply lines to overpower an enemy along fixed fronts. Even the new Rapid Deployment Force has become bogged down with such weapons as the Bradley Fighting Vehicle. John Boyd, a leading tactician in the reformers' camp, argues that battles are usually won by maneuver speed and surprise. Instead of heavy armor like the M-1 tank, which requires fleets of fuel trucks and frequent maintenance, the Army should rely on light infantry units.

Although the Pentagon is uncomfortable with much of what the reformers propose, some of the military's doctrines have been evolving in a direction that emphasizes maneuver warfare. An example is the Army plan called AirLand Battle. The idea is for the first line of allied defenders to confront an invading army while reserves counterattack deep into the rear of enemy lines. In addition, long-range air and missile strikes would be used to attack enemy supply lines and reinforcements. The new weapons involved, called assault breakers, include sophisticated self-guided bombs which are designed to home in on tanks using radar or infrared sensors.

(9) The emphasis on troop maneuverability in the AirLand Battle plan is a promising development. But the doctrine still depends heavily on expensive and complex long-range weapons. Although the new assault-breaker munitions have performed adequately in controlled tests, they bear worrisome similarities to such radar-guided weapons as the Sparrow missile, which was supposed to score "kills" in 90 percent

of its firings but which critics say has achieved only an 8 percent kill rate in combat. The Pentagon has long been pushing the high-technology weapons that are involved in the AirLand plan. To some degree, it appears that the desire for advanced weapons has once again dictated strategy, rather than the other way around.

(15) True military reform, getting more bang for each buck, will involve fundamental changes at all levels of the weapons procurement process. The first step must be to determine accurately the costs of weapons. Contractors and Pentagon program directors should not be allowed to "buy into" long-term procurements with pie-in-the-sky price projections. Contractors should bear direct financial responsibility for cost overruns. This would force the Pentagon to refrain from "gold-plating" and tinkering with designs once a weapon moves into production.

(16, 22) Competitive bidding should be used whenever possible. Contractors should compete to produce the best possible design to perform a clearly defined mission. Once a model is chosen, and the winner has been paid by the Pentagon for the design and the further research needed to build prototypes, bids should be taken from the winning firm and others to produce the final weapons. The Pentagon argues that gearing up more than one production line would be expensive and inefficient. But with most armaments, even figher planes and tanks, awarding construction contracts to at least two companies (known as dual sourcing) could save money.

(23) Within the Pentagon, the research and development group in charge of designing a new weapon should not also have the responsiblity for testing it. A separate testing group, which would have no vested interest in seeing that a project is carried to completion, should oversee testing. Shoot-offs between proposed new tanks, ammunition, guns and planes could be held between both existing and other alternative models. In addition, a new weapon should be compared with the full number of alternative weapons available for the same price. In other words, the effectiveness of F-15 planes under a variety of battle scenarios should be compared with what five times as many A-10 planes could do.

(11) A clear decision should be made on whether a weapon is necessary and effective before production begins. Those that appear too costly should be killed outright; the others should be bought at optimal rates. Budget limitations require that the Pentagon and Congress set priorities among weapons rather than deferring production schedules. The missions that the weapons must perform should be clearly defined and dictated by real needs rather than an infatuation with advanced technology. Whether a weapon can be afforded in adequate numbers should be a more important concern that whether it in state-of-the-art; all the latest bells and whistles will do scant good if a weapon is overwhelmed by superior numbers.

(24) The institutional tendency for each service to pursue and protect its own glamorous weapons systems can only be cured by a restructuring at the top. Most important the Joint Chiefs of Staff must be reformed. At present, the Joint Chiefs make their recommendations as a group. The chairman, who is ostensibly removed from representing the interests of just one branch of the services, is supposed to mediate when, say, the Army and the Navy disagree. But since the Chairman has only the power of persuasion, disputes are frequently left unsettled. Thus, if the Navy wants one plane and the Army another, the Joint Chiefs are apt to recommend the development and acquisition of both.

The Chairman ought to be given a stronger hand to deal with interservice disputes. An even more radical suggestion, made by Army Chief of Staff General Edward Meyer, should also be considered: removing the dual hats that the Joint Chiefs wear as the heads of their respective services. Upon promotion to the Joint Chiefs, a general or admiral should be beholden to only the President and the military as a whole. The current Chairman, General John Vessey, has resisted major reforms to the structure of the top command.

The 400-member staff that serves the Joint Chiefs should all wear "purple uniforms," meaning they should not owe their allegiance to their respective service branches. The law restricting tenure on the staff to three years should be repealed, and the Chairman, rather than the four services themselves, should appoint the members. The fear that a powerful "general staff" could become a dangerous political force is outdated and bogus. Potentially, the Joint Chiefs, with a truly independent staff, might even be able to budge the entrenched bureaucracies in the Pentagon to adopt innovative doctrines. At the very least, they could be responsible for setting priorities in weapons procurement.

The ideas proposed by the reformers have been sharply disputed by many in the Military Establishment. Indeed, there are compelling arguments on both sides of most questions about weapons procurement and fighting strategy. The disputes—

which are healthy—will no doubt become more contentious. In the next two weeks, Spinney is expected to brief three more congressional committees.

The one issue that is clear from this growing debate is that the problem of funding the nation's much needed rearmament cannot be solved by knocking out a billion dollars here and there each year. To be sure, Congress will have to look carefully at the proposed fiscal 1984 budget and set priorities, which the Pentagon has thus far failed to do. But the real challenge will be to reform the way the military spends its billions. If the defense Establishment continues to squander money on a small number of expensive weapons, it will also squander the public support that is crucial for a defense buildup. But if the winds of reform swirling within and around the Pentagon help dispel the climate of mismanagement and waste, the military will have not only more money but also more fighting strength.—By Walter Isaacson. Reported by Bruce W. Nelan, Christopher Redman and Evan Thomas/Washington

Gold-Plated Weapons

The stunning costs of loading weapons systems with the latest in sophisticated technology, and the long production delays that result from this endless "improvement," might be tolerable if "U.S. military forces in the end were equipped with the very finest weapons, or at least ones that could do the job. But all too often the gold-plated armaments bring embarrassingly small improvements in fighting capability. Sometimes, in fact, older, simpler and vastly cheaper weapons work as well or better. Military reformers cite numerous example. Here are four.

B-52 vs. B-1B.—Much of the debate about the B-1B intercontinental bomber revolves around price: Will the 100 new bombers that the Air Force wants to buy cost $200 million each, as the Pentagon figures, $258 million each, as a team of retired generals who studied Air Force procurement guesses, some figure in between or possibly something even higher? But there is another, at least equally troubling question: Will the most expensive plane ever built—and the B-1Bs will be that by anyone's estimate—do a significantly better job of penetrating Soviet air defenses in case of nuclear war than the aging (20 years and up) but still quite serviceable B-52s that they will replace?

Too many of the test data are still secret for a definitive answer to be given, but some experts who have seen the results are gravely worried. They say the B-1B has poor acceleration and little maneuverability ("Worse than the B-52," charges one critic) and that its range is less than the 7,445 miles planned. One objection to the B-52s is that because of their age it is getting increasingly difficult to keep them ready for combat. But early data indicate that the B-1B, because of its complexity, also would face severe maintenance problems. The Air Force contends that the B-52 presents too broad a "cross section" for Soviet radar. Critics doubt that the B-1B design will fool Soviet radar either. Worse, they charge, the B-1B's own terrain-following radar, which is uses to navigate to the target, will send out what amounts to a beacon that enemy fighters and missiles can home in on. The doubters concede the B-1B's advanced avionics gear will do a better job of jamming Soviet radar, but add that the same avionics could be put aboard B-52s at a small cost. In sum, whatever edge the B-1B might have over the B-52 would be purchased at an exorbitant cost for a few years between 1985, when large-scale deliveries would begin, and the early 1990s, when an all-new Stealth bomber could be available.

The M113 vs. the Bradley Infantry Fighting Vehicle.—The M113 armored personnel carrier has been the U.S. Army's "battlefield taxi" since 1960. It hauls troops to the action, but they have to jump out and fight on foot. Army planners wanted the infantry to ride right into battle alongside tanks, so they designed the Bradley. The Army plans to buy 6,882 at a cost of $1,947,000 each, vs. about $80,000 for an M113.

The Bradley is a behemoth, so wide that is cannot readily fit into the standard C-141 military transport plane; it has to be partially disassembled. Its 5½-in.-thick armor adds some protection, but on the battlefield, critics charge, the vehicle would be a death trap. Its width and excessive height (10 ft.) offer an inviting target to enemy gunners. At times it even has to be a stationary target: the Bradlye must come to a complete stop to fire its antitank missile. Its 25-mm gun also has a problem: it is said to be highly inaccurate.

Hand-carried, cheap (average cost: $150) antitank rockets, which are now standard equipment for every infantry squad in the Warsaw Pact armies, rip through the Bradley's aluminum armor like a welder's torch. Unlike steel, the aluminum vaporizes and burns, adding immense heat to the explosion inside and producing a fireball. That is not a theoretical danger. The M113 also is made of aliminum, and M113s carring Israeli troops went up in flames in Lebanon. During the invasion, Israeli troops rode on exposed areas of the M113—not inside it. Since the Bradley is designed for actual combat, it is far more likely to be hit, and since its armor is twice as thick, there is twice as much aliminum to vaporize.

The crowning irony is that for all its imposing bulk, the Bradley is so cramped that only six soldiers can squeeze into it with the commander, driver and gunner. The M113 will carry eleven. The Bradley, sums up Paul Hoven of the Washington-based Project on Military Procurement, "is an infantry fighting vehicle with almost no room for the infantry."

(6) *A-7 vs. F/A-18.*—Though it can do double duty as a fighter, the main role of the Navy's F/A-18 Hornet is to replace the A-7 Corsair II in flying from carriers to bomb and strafe targets onshore. The Navy wants to order 1,366 of the new aircraft at a total cost of $41 billion, or $30 million each, triple the $9.9 million cost originally expected and also triple the cost of the latest version of the A-7.

(7, 8) Alas, the flashy Hornet burned fuel so fast in test flights that its combat radius is now calculated at only 390 miles, about half the range of the A-7. Either the Hornet would have to be refueled in flight or its carrier would have to sail closer to hostile shores than might be desirable. Test pilots have described the F/A-18's elaborate air-to-ground radar as "grossly inaccurate." Deputy Secretary of Defense Paul Thayer flew one himself to check out reports of serious problems, when he landed, the nose wheel failed to come down and he had to adopt emergency procedures. Some experts now believe that the very concept of such a mulitpurpose plane is wrong. They point out that in Viet Nam, Navy pilots who specialized in either dogfights or bombing missions outperformed Air Force pilots who tried to do both.

Thayer is considering cutting back the Navy's order to 900 Hornets. But that would drive the cost of the individual aircraft still higher. Moreover, the Navy would probably want to substitute F-14 Tomcats, carrier-based fighters, for the unpurchased Hornets in their fighter role. Tomcats are even more expensive; they cost $44.3 million apiece.

Sidewinder vs. Sparrow.—Both missiles have been carried by U.S. fighter planes since the 1960s. The Sidewinder is designed to down enemy planes within visual range, roughly eleven miles. A heat-seeking missile, it speeds toward its target at twice the speed of sound, and homes in on the tailpipe. Its current version costs $59,000. The Sparrow is bigger (500 lbs. to 190 lbs.), nearly twice as fast, and is guided by radar so that it can be fired at targets as far as 31 miles away. It costs $169,000.

(9, 10) Which has proven deadlier in combat? The Sidewinder, easily. During the Viet Nam War, Sidewinder shot down their targets 24 percent of the time, Sparrows only 8 percent. Improvements to both missiles do not seem to have changed their batting averages. Israeli officials have told Americans that Sidewinders killed far more than 80-odd Arab jets downed over Lebanon last year than Sparrows did. One reason: most aerial duels are fought at less than the Sparrow's minimum effective range (which is secret). In a close-range dogfight, the Sparrow's great speed often causes it to zip right past an enemy plane taking evasive action before the missile's radar can zero in on the target.

HIGH SPECS

"There are three ways to do any thing: the right way, the wrong way and the Army way." That ancient wheeze is, if anything, more appropriate now than when it was drawing guffaws from G.I.s during World War II. The Army, Navy and Air Force still cannot do anything quite like anyone else; in particular, they are reluctant just to go out and buy something. First, someone has to draw up elaborate "military specifications" (mil-specs) for almost anything that the services buy, be it an aircraft carrier or a wood interdental stimulator (toothpick). Twenty-four pages are required to list the specs for T shirts, 15 pages for chewing gum, and 17 for Worcestershire sauce. One result: the Pentagon pays $10 a case for Worcestershire sauce, *vs.* $8 for a commercial brand.

(12) Military officers say the specs prevent cheating by contractors and help fill special needs. Perhaps the Pentagon did have to design a carrying case for a Bell & Howell 16-mm camera that could withstand both arctic cold and desert heat—but one may wonder whether the case is worth eight times as much as the camera it holds. Defense Department Engineer Ralph Applegate was fired six years ago for disclosing that the services were paying $1,130 a piece for piston rings that civilian buyers could purchase for as little as $100 each. Explanations are still being sought about why the Navy spent $18,000 on a couch for the officers' wardroom of one de-

stroyer. Asked what special features made the couch so expensive, an admiral replied that officers would "use it for a long time."

Secretary LEHMAN. I am pleased, Mr. Chairman, that the Time article did focus some attention on Mr. Spinney's report because, Mr. Spinney, as I am sure you know, feels very strongly that there should be defense increases, not decreases. Somehow that failed to make the editorial. In any case, he has rightly put his finger on some of the key causes of cost overruns and mismanagement of the past that needed attention, principally competition.

While many of us don't agree with his predictions for the future, nevertheless, he has accurately pointed to some of the problems that make the reforms that Cap Weinberger has instituted just that much more important and dramatic.

One of the many errors in the Time report is the assertion that aircraft readiness will decline and that readiness is being slighted over investment. This is of course wrong. As I said, aircraft squadron readiness has continued to increase during the 2 years where these investment budget increases have taken place, up 16-percent overall in 2 years in mission capability. The amount of dollars that we are putting into the budget readiness accounts and spare parts have moved us to a zero backlog for aviation maintenance, for instance, for the first time in anybody's memory.

There are no grounds to predict that somethow things are going to turn around. The fact that the overall percentage of Navy money going into O&M, as a percentage of the Navy budget, will actually decline slightly in the outyears is very good news. It demonstrates one of the other basic fallacies in the Time article that investment in high tech does not lead to runaway inflation, although obviously, like anything, there are abuses. Rather, investment in high tech has brought the cost of ownership of the Navy, in relative terms, down substantially over the years.

F-14 AND F-15

While price differentials are cited in the article between the F-14 and F-15, on the one hand, and the low-mix fighters, on the other; what they don't tell you is that the high-tech airplanes of today achieve about one-twentieth the accident rate of the good old days of 20 to 30 years ago, of simple, low-mix, jets.

We crashed, in 1953 and 1954, about 1,200 airplanes a year. Last year we crashed 90. The article doesn't talk about the kill ratio that we have consistently demonstrated with high-tech weapons such as the F-15's, E-2C's and F-16's that the Israelis used to achieve an 80 to 1 kill ratio during the recent conflict in the Middle East.

The article also fails to report that the actual personnel manning cost of the Navy, for instance, bucking the overall defense trend of the last 20 years, has actually declined 2 percent. The reasons are obvious. The F/A-18 Mr. Chairman, a high-tech airplane, will take 50 fewer trained technicians per squadron to maintain than the aircraft it replaces. The Aegis cruiser, for example, which is far, far more capable than the cruiser it will replace will be manned by 300 men and 26 officers. Twenty years ago a cruiser took 1,300 sailors and 300 officers.

The up front investment in high tech is paying off big. We project that O&M is not an unending sump. In the future we are actually going to be able to bring O&M down as we bring readiness up, to the wise investment in high tech. That is good news.

Another part of that good news in lower cost of ownership is that you will notice in the CNO's and Commandants' posture statements the fact that we are growing the Navy and the Marine Corps solely out of retention. We have not, and do not, program any increase in the accession rates or the accession training base. We are not programing expansion of the intake apparatus of the Navy and the Marine Corps. The accession levels will remain unchanged through the 5-year plan as they were for the last 2 years. The growth in end strength is coming, where it should, from retention of those people we have invested in in the past. Again, lower cost of ownership.

The 600-ship Navy is affordable and will be paid for out of the funding that is in the budget. There are no hidden costs and that is good news.

Mr. Chairman, other than that I agree with the Time article completely. [Laughter.]

CUTTING THE MILITARY BUDGET

Chairman TOWER. It has been widely suggested on the Hill that a 10-percent increase in real terms in the military budget is too much, that we can actually get along with a 5-percent increase. Cutting the increase in real terms in half of course would have some impact on your ability to carry out your roles and missions.

I would particularly like to hear from Admiral Foley and General Barrow on this. How do you think this would impact on you, indeed, if we went from 10 percent real growth in the fiscal 1984 budget to only 5 percent?

Admiral Foley, would you comment first?

STATEMENT OF ADM. SYLVESTER R. FOLEY, JR., USN, COMMANDER IN CHIEF, U.S. PACIFIC FLEET

Admiral FOLEY. In the fleet, sir, it depends on the specifics. How much do I get hit, sir, with the proportion of the budget cut? I have an input into the budgetmaking process for the Navy with the CNO and the Secretary as well as through the Commander in Chief, Pacific, Admiral Long, and as I know the budget right now, it is a conservative, reasonable approach.

I do not advocate any cuts. It is like asking me which one of the wars do you want to lose or how many contingencies do you want me to be unable to meet. I say none. I don't go in to lose any.

So, when you ask would a 10-percent cut be all right or a 5-percent cut be all right, I have to say I don't believe there should be any cuts in the basic budget that is proposed, sir. Because of the fine-tuning of our inputs on end, we believe that no cuts in the steaming days, the flying hours, the spare parts, the sustainability issues, can be sustained because all of these drive my operation.

So, I won't give you any finite number. Clearly a 5-percent cut is better than a 10-percent cut. A 1-percent cut is better than a 5-perent cut, but I am not advocating any cuts, sir.

General **Barrow**. I had planned to make this point, Mr. Chairman. You asked me a direct question.

There is no growth in the Marine Corps budget, 1984 over 1983. Therefore, any thought of cuts that we would have to take a share of would indeed be harmful to us because we have in place, as I indicated in my statement, a balanced program, not just a little of this and a little of that. It is a balanced program of modernization, sustainability, manpower, and readiness, any loss of which would be harmful. We have momentum going. To me, it is the most exciting period in my long career. We are giving our fine young marines out there in the field the wherewithal to win more easily, and that is terribly important. I don't want to see any cuts.

Chairman **Tower**. My time is up.

Senator Nunn?

Senator **Nunn**. Thank you, Mr. Chairman.

Mr. Secretary, you made a number of procurement improvements and I congratulate you for that. I think you have gone through some of them. I have a couple of questions on that.

UNIT COST AMENDMENT

We passed a unit cost amendment a year and a half ago. What has been the effect of that unit cost amendment in terms of your management of Navy procurement?

Secretary **Lehman**. I am sure the CNO and Commandant would agree with me that the Nunn amendment has proved to be a very helpful tool to the senior management in the Pentagon and certainly to the Service Chiefs and Secretaries. It regulates a way of forcing any problems to the surface that might otherwise remain in the project office for longer periods. It gives us a vehicle to get hold of management problems before it is too late to do something about it. I have a helpful suggestion——

Senator **Nunn**. I was going to ask that next. If you have some, I would like to have them either now or preferably for the record.

Secretary **Lehman**. I would like to provide some detailed suggestions for the record. They mainly have to do with focusing more on actual fly away cost and the 5-year span of time rather than total program cost. There is so much fudge in the estimation of total program cost based on prediction and guess on what labor costs and inflation rates will be in the outyears. As a result, this invites the shuffling of problems into the outyears where assumptions can make them disappear. Under the 5-year program, we have to apply discipline to our budgets for the 5 years, including the real dollars of the budget we are asking for in the next 4 years. That provides a realistic focus that would help to impose a stricter discipline on the procurement process.

Senator **Nunn**. I would welcome those suggestions and would look favorably on making any kind of corrections that would be in keeping with the original purpose, to help you as Secretary to manage the procurement end better.

I do think you have taken a number of initiatives that have been commendable and over the long haul will really pay off.

[The information follows:]

UNIT COST AMENDMENT

The unit cost amendment has been helpful in focusing attention on the unit aspect of program costs. It would be of greater help and an improvement in the process if threshold breach reports were triggered based on constant unit dollars as opposed to then-year dollars which is now the case. This would encourage concentration on real unit cost growth as opposed to changes in inflation rates.

Credibility and utility of the Selected Acquisition Report (SAR) system have been the subject of interest at all levels. The report is supposed to assist Defense top-management and the Congress in making acquisition management decisions. It fails to accomplish such an objective. Over the years, it has evolved into a vast collection of data, requiring large expenditure of effort in preparation and review with little observed utility. In fact, confusion has been more often the product. I can see no reason why such a product should be perpetuated. I commissioned a top-level study group to review the system and provide recommendations. I have received their report. Of relevance to the spirit of your question, it concludes the following:

(1) Consider the Unit Cost Report as the main reporting instrument to Congress. The information provided (i.e., unit costs, quantities, etc., plus the notification of cost breaches, along with operational and technical data now provided in the Congressional Data Sheets) fulfills the top-level review needs of Congress.

(2) Unit costing should be on a constant dollar basis in a base year of the most recently submitted budget. Comparisons being made on constant dollar basis using the most recent experience data would have much greater accuracy and validity on which to base conclusions associated with controllable change.

(3) Steps taken by Congress to simplify the SAR are valuable, but the redundancy between the SAR and Congressional Data Sheets, should be eliminated. this would leave only the Unit Cost Report and the Congressional Data Sheets.

Such a report change is based on the merits of the system already initiated under the "Nunn amendment" that provides the appropriate "management-by-exception" type of review as supported by documents already provided to Congress under the provisions of Article 139, title 10. This recommendation should, in no way, be interpreted as implying that we will not internally modify our acquisition information systems to provide better top-level oversight and review. It simply meets the criticism and failure that has surrounded the SAR for some time and will permit us to focus on the substance of acquisition management, not a report.

Senator NUNN. Let me ask you another question on this.

It seems to me whether it is the Spinney analysis or the recent Air Force analysis or others, including the Heritage Foundation, that one of the things that everybody who has looked at this procurement problem centers in on is the initial estimates.

COST ESTIMATES

The question I have for you, you have been in this management end, I think more than any Secretary recently, is how, whether it is legislation or management, can we improve the cost estimates going in on original procurement; and the second part of that is, if we don't improve it, how can we make sure the people who both manage the program and who are successful bidders have some recognition that if the original cost estimates are low-balled, that is the foot in the door kind of procedure, which I suspect is the prevalent procedure, that once that cost estimate proves to be faulty, there is going to be a real penalty to pay?

I don't know what that penalty ought to be. Perhaps even opening the competition back up. I know that would delay programs for a long time, but looking at it from a broader point of view, I think it is essential.

No. 1, that we have better cost estimates;

No. 2, that something happens to the program managers and to the contractors if the cost estimate goes awry.

Secretary **Lehman**. That is really my favorite subject. Happily and hopefully, that the carrier debate, which took up half of all our time last year, is behind us for the next decade, we can spend more of our time actually managing our program because that is where the high payoff now is.

The first priority is that I urge this committee, and Congress generally, to support Secretary Weinberger's totally revolutionary change in the way of doing business in the Pentagon. While a lot of the reforms that have taken place, the results are not yet completely in; I can assure you they are happening. The biggest change he has made is accountability and authority, the delegation of authority with strict accountability. It has provided an environment in which management initiatives, like the Carlucci initiatives and independent cost estimating and realistic pricing, can take place. For 20 years prior to this administration, authority was dispersed in hundreds of unaccountable Pentagon offices under the guise of what was called reform. This was really consolidation, the enemy of real reform, that we had lost the ability to manage and to discipline and to maintain accountability and authority. That has been changed now. Cap has a very fine and natural instinct for management. He has delegated authority without letting go of policy control and responsibility. We now have authority to manage these programs and we should be held to account for them. So I would urge you to support that and hold us in the services accountable.

You should have to understand that there are two very different problems involved between development cost overruns and procurement cost overruns. On the one hand, Congress and the executive branch have become slightly confused by thinking that competition in development got the better deal. That has not been the case. Competition fly offs, and so forth, really results in the selection of a 10- to 20-year monopoly. That is why 85 percent of our programs, were sole source just 2 years ago.

Senator **Nunn**. It was really design competition that has no cost competition?

Secretary **Lehman**. That is right. You get no discipline of program cost control. For instance in the F-18 program, using what are admittedly mythical numbers, of $40 billion for the total program, only $3 billion of that is development. The real money, the real overruns are in production. When we get into sole source production relationships, you cannot have adequate cost control. I do not believe it is possible.

SOLE SOURCE PRODUCTION

Having said that, I want to point out that, in my judgment and from my experience with a great many industries, I believe that the defense industry, and the aerospace industry in particular, have some of the highest caliber individuals of any industry in the world. The problem is not greed, stupidity, fraud, or any of that kind of nastiness. It is the lack of the pressure of competition to force the disciplines of hard negotiating with subcontractors, and hard negotiations with unions to make sure that labor rates don't increase faster than productivity. What is the incentive for staying at the table with your unions or your suppliers if you can pass on their cost increases to Uncle Sugar with a 10-percent profit on top? Obviously, the enemy of cost control in defense is sole source production.

We can't always get away from sole source relationships and here is where multiyear procurement is most applicable. In situations like the Trident submarine program and the carrier acquisitions, where you have no choice but to go to sole source, we have to negotiate tough terms in advance with strict share lines, ideally 50-50 share lines, and then commit to them. Locking them into multiyear buys eliminates the uncertainties of long-run ups and downs.

We have done that and that is where we have used multiyear procurement. Multiyear procurement is not a panacea to solving our cost control problems. I am a firm believer that dual source and annual competing is a better way of keeping costs in control.

Senator **NUNN**. It costs more in the short run than——

Secretary **LEHMAN**. Yes; but it does not really cost more in the short run. Our experience has been, that if you ask the system what does it cost to second source, you will get estimates that are prohibitive. Every time I have asked the question for something, like the CG-47 or vertical launchers or armored box launchers or indeed HARM, the system, OSD and the Service system, comes back and gives you such a high up front investment that you can't amortize it over the years of the program.

You say the hell with this, we are going to do it because I don't believe the cost increase. You find out that often you can get the aspiring competitor to fund that, himself, and with no up front cost. Where there are up front costs, generally they are far lower than the system says they are, because the system obviously resists a competitive management.

Senator **NUNN**. Does that mean that on figures we get from the Department of Defense on cost estimates we ought to be strongly suspicious of as you obviously are?

Secretary **LEHMAN**. Yes. Let me tell you why in some cases it is true. It is not because the methodology is necessarily bad. Independent cost estimating, to answer another part of your question, is an important tool. It is a new tool that you may want to require—particularly for development programs because having non-program dependent estimators looking at parametric models, when you are looking at an unknown program with lots of development risks is very useful.

There was a clear pattern, as we entered the decade, of double-digit inflation, quite, apart from the problem of low-balling, which is obviously there. We also have a problem with honest estimating being too low because of underestimating inflation. Every administration during the seventies underestimated the rate of inflation. Then we went over in 1979 and 1980 and set up these independent cost estimating groups. In affect, what they did was look back at the last 10 years and say we overran that program 20 percent every year, so they projected that forward and that is what was presented to the Congress in the budget, an estimate of 20 percent cost higher than what the program office said it would be.

Obviously we have a problem here, because during the lag time between presenting our budget in January; and when we write contracts on the programs in this budget, these figures will have been all over the world for a year and a half. It will be a year and a half from now by the time we conclude the aircraft contracts for the programs requested here. What is a poor contractor going to do, but obviously look at the budget and figure that they have a fly-away cost of $30 million for the F-14. He would therefore say, "my proposal to the Navy will be $44 million per airplane and we will let them negotiate us down to $38 million because we know it is in the budget."

Cost estimating is a problem of self-fulfilling prophecy. It is a double-edge sword with too many things in it. It is not a simple answer. It is a valuable tool that I would urge you to use in estimating development contracts especially where there are no four corners around the problem, and there is risk and you have to chase it and you don't know how far you are going to chase it.

Chairman TOWER. Mr. Secretary, unfortunately, our time is more finite than your capacity to respond to questions. [Laughter.]

This is an enormously interesting discussion and I think very helpful.

Since Senator Nunn's time has been overrun substantially, I think we should yield to Senator Goldwater.

Senator GOLDWATER. I first want to congratulate General Barrow. That was one of the finest statements I have ever heard made by a man in uniform in my 30 years.

Second, Mr. Secretary, when you get everything said you have to say about Time magazine, the Russian edition, I will have something to say on the floor, I hope tomorrow, which might clean it up to the extent I can. [Laughter.]

NAVY AIRCRAFT

Last year this committee expressed concern over the large number of Navy aircraft production lines in operation. There were 13 of them then and this year there are 16.

Of those 16 production lines, 10 are producing fewer than 1 aircraft per month. In seven instances the rates are so low that the entire overhead burden for a year is distributed on just six or fewer aircraft.

Now we should be producing 132 FA-18's this year, but instead we will produce 84. We should be producing 30 F-14's, but instead we are at 24. We should be producing at least 12 A-6E's, but instead we are at 6.

Each year it seems we add new production lines and draw down existing ones. Given the current budgetary pressures we face, what steps are you willing to take to reduce the number of Navy aircraft production lines?

Secretary LEHMAN. Senator, that is another management dilemma. All of what you say are valid points, that low rate production gives you higher unit cost.

In the case of Grumman, where we actually have five different production lines each producing at very low rates, in fact, the overhead is shared among all the programs so that the problem of low rate is not as bad as it might otherwise be were a contractor producing just one airplane. The fact remains true, we could definitely get a lower unit costs on every one of the airplanes that we have in production by increasing the rate. However, there is a countervailing consideration and that is competition.

There is no question that we were able to negotiate the F/A-18 price down 13 percent from the year before for one good and sound reason, we had another place to go. We had alternatives because we had the A-6 and the F-14 in production and they were viable alternatives. Similarly, we were able to get the F-14 price and the A-6 price down because we also had alternatives in the mix. So we definitely want to keep all three of those airplane production lines going for the long term because, in effect, they are competing with each other in cost performance.

While you will get arguments on both sides, I am a firm believer that the benefits in cost reduction resulting from real competition are greater than the benefits of sole source high-rate production. That has been our historical experience and is valid.

There is another consideration and that is mobilization base. It is better to have a warm production line, even at six a year, as a hedge against having to surge in wartime than to buy out a program and close down the line. So in effect we are investing a little bit in wartime mobilization or a surge base mobilization. Then there is, alas, a third consideration—it is not easy to close a line. We tried last year to close one Navy line and we were unable to because of considerations extraneous to Navy requirements. Similarly, I have read that the Air Force would have liked to terminate the A-10, but has not been able to for similar reasons.

Senator **Goldwater**. Yes. They have in spite of Mr. Addabbo and the Speaker of the House, we terminated the A-10.

Secretary **Lehman**. You would have just as much trouble taking anything out of Grumman.

Senator **Goldwater**. I said the other day unless we get the Members of this Congress willing to defend the United States and not just individual States, we are going to be in a hell of a fix. I am going to keep badgering you on the production lines because they happen to come under my subcommittee. I can accept some of the things you have said, but we will talk more about it in the subcommittee meeting.

I have another question. I did not want you to run out of time. [Laughter.]

JVX PROGRAM

Mr. Secretary, we have recently learned that the Under Secretary of the Army, Jim Ambrose, has indicated to you that the Army does not intend to continue to participate in the JVX program, the tilt rotor, since Sikorsky did not respond to the request for proposals.

The multiservice program made a lot of sense to me and was designed to take advantage of some very great strides in technology to the benefit of all four services.

What does the Navy intend to do if the Army withdraws their support? Do you feel your requirements have changed in any way and I would also be interested in Admiral Watkins' and General Barrow's comments on the JVX.

Secretary **Lehman**. The JVX is one of the most exciting aviation programs in the entire defense budget. It is a simple technology. I am sure you have flown it. It is a reliable, relatively risk-free program that shows very high promise for all of the services, Army, Air Force, Navy, and Marine Corps.

Most time urgent for us is the replacement for the Marine lift, CH-53 and CH-46. I do not believe the Army is going to drop out of this program. The Under Secretary has indicated to me his unhappiness with the fact that only one team has agreed to compete. We are disappointed, but we understand.

Sikorsky, let us face it, has a lot of production lines going. In fact, we have had difficulties with them, that are solved now, because there was a little more on their plate than they were able to digest.

In the case of the team we have, Vertol and Bell, we have intended from the beginning to proceed and build a program with two production lines. While it will be a common development program with that team, as soon as they get the pilot production, it will be leader/follower with competition every year of the program.

It is an important program. It will be unacceptable to go sole source in such an important program. So the current plan is to proceed with the development program with the team selected and then immediately go into full rate competition on a leader/follower basis annualized after that.

Senator **Goldwater**. I think Sikorsky's problem might be with their contrarotating helicopter.

Secretary **Lehmam**. That is an interesting technology, but it really does not compete with JVX. It is most applicable to a new advanced attack helicopter concept because it is not intended to provide the lift or the range. It does provide speed and manuverability and is very interesting technologically, but it does not directly compete.

Senator **Goldwater**. I think Sikorsky looks on that contrarotator as a JVX. I hope they work this out. I agree it is the most exciting development in aeronautics since the Wright Brothers.

Thank you, Mr. Chairman.

Chairman **Tower**. Senator Exon?

Senator **Nunn**. If Senator Exon will yield, I do want to commend General Barrow, not only for an excellent statement, but a great career in the Marine Corps.

Senator **Exon**. Mr. Chairman, I was about to say I wish to associate myself with the remarks made by my colleague, Senator Goldwater, with regard to what the Senator said about the statement you made, General Barrow. I think you have been a great leader.

I hope, although you will be retired, you will not retreat to the Halls of Montezuma because we will need your input and advice around here and I hope you will be around to help us when we need expert advice, especially on Marine Corps activities.

I would like to start out, Mr. Chairman, by addressing my questions to first the Secretary, and then possibly Admiral Watkins can add to it.

NUCLEAR DETERRENT

We are going to be faced here in this committee in the next few weeks with rather important decisions with regard to nuclear deterrent when the President's Commission reports back on the MX. We have to look at the overall balance and what the options are here.

As I understand it, earlier today you testified, Admiral Watkins, that the IOC for the D-5 missile was 1989. Is that correct?

Admiral WATKINS. Yes, it is, sir.

Senator EXON. Let me ask the question this way. If to improve our deterrent, we decided and felt it was necessary to put additional money to bring along the D-5 more quickly, could that be done and how much money would it take to do it?

Admiral WATKINS. We have reviewed that particular question a number of times, Senator Exon, including just last fall.

The answer is that we cannot throw more dollars at the D-5 development. We are accelerating that with direction from the administration at the maximum possible rate. We are going to be working very hard to achieve that IOC of 1989. It is on track and we believe we will meet it with a low and in only one case a moderate risk to achieve the IOC, but you cannot add more dollars and get there any faster.

Secretary LEHMAN. The only qualification I would add to that is that, in the outyears, the choice to deploy more of them faster by buying more and back fitting earlier is certainly open to Congress, but that does not affect the IOC. It is really at how fast a rate you can deploy them after 1989.

Senator EXON. Can you say in open session how many we could possibly deploy in 1989 under the present program.

Admiral WATKINS. Under the present program we could, without much difficulty, put four fully equipped Trident submarines to sea in fiscal 1991, fully ready with all missiles aboard.

Senator EXON. A followup question, Mr. Secretary, would obviously be in that case, how much money we would put into 1992, 1993, and so forth.

Do you have a precribed plan along those lines?

Suppose I said to you today if we wanted to expedite the D-5 which in my opinion has great promise, how much money would it take to do what in the outyears?

Secretary LEHMAN. We have not produced a plan beyond the one contained in the 5-year plan that we have submitted. We can provide for the record whatever information you might want to have. I want to say, less my silence be construed as implicit nonenthusiasm for the MX, that I fully support——

Senator EXON. That was my next question. I knew you would get in.

Secretary LEHMAN. I fully support the President's commitment to modernize all three legs of the triad and I think it is essential.

Senator EXON. Mr. Secretary, since this is my time, I, too, am for all three legs of the traid. I say to you again that hard decisions are going to have to be made in the Congress. We have meetings, we keep beating the tomtom for everything that the Department of Defense has wanted.

I simply say to you that realistically speaking, there are going to be some cuts made in this defense budget. Somewhere along the line some of us are going to have to take a public stand. We have not been successful in getting recommendations from the Department of Defense as to where we would be least harmful in cuts.

Assuming that they are all bad, I am fearful we might make cuts in the wrong area. Since you brought up the MX, and I am glad you did, have there been discussions inside the civilian part of our defense strategy as to what role the D-5 might play as an alternative to buying fewer MX missiles, and as I say that, I am not certain at this time whether we are going to buy any. But have there been discussions inside the administration as to how we might bring the D-5 along with the universally accepted attitude that the one place that we could have a mobile missile that could not be located and would not be subject to a first strike would likely be the D-5?

Have you discussed inside the administration and can you tell us what those discussions were as to whether or not the D-5 might be a possible competitor with the number of MX's that we might buy?

Secretary LEHMAN. Obviously, we have discussed all possible mixes. The fact, is there is universal acceptance to deploy the D-5 in 1989 with a yield accuracy ratio that will have the same hard target kill capability as the MX, but that is not to say that it is a substitute for modernizing the land-based leg.

I can tell you that there is no doubt in any of the best scientific minds that we are aware of and talked with, and from our own intelligence that suggests anything moving toward the vulnerability of the sea-based leg in this century. In fact, the trends are indeed that the oceans are getting more opaque rather than more transparent. We will have a survivabile leg of the deterrent and it will have the same accuracy as the MX, but it does not provide the benefits of a land-based leg which we in the administration believe also needs modernization.

Senator EXON. Mr. Secretary, if it is true that oceans are indeed becoming more opaque rather than transparent, doesn't that lend some support to my basic feeling that maybe we should be relying more and more on that opaqueness as far as our deterrent forced is concerned?

Secretary LEHMAN. I would hate to allow the Soviets the luxury of having to target all their counterstrategic forces in one medium only. In other words, if they only had to worry about one leg of triad, then they could put more of their resources in lessening the opacity of the ocean than producing more attack submarines.

Senator EXON. I think we are not going to get very far on that, Mr. Secretary. So, I will go to another question.

Admiral Foley, we on this committee have been very much concerned about the men and women that we have far flung meeting our responsibilities around the world.

DIEGO GARCIA

On Diego Garcia last year we were notified that the facilities there for men and women we have had there were not good at all and through some efforts I took and with the cooperation of the chairman, we put in some additional money very late for additional facilities on Diego Garcia to give the people there something to do.

They didn't have a great deal to do in that area. I assume you have not been successful in building any of that yet, but could you give us a brief report on whether or not some of that construction is not underway or how far down the line it is?

Admiral FOLEY. Yes, sir. First of all, I have been in Diego Garcia within the month so I speak with some recent knowledge.

Second, let me say they have plenty to do in Diego Garcia. That is certainly not the problem. It is interesting, having visited there over the past 6 or 8 years now at different time intervals, to watch the growth and the maturation, if you will, of the facilities there.

First of all, let us talk about the professional facilities, the runways, taxiways being worked on, modernized, ramp spaces, pier for the utilization of ships, the harbor has been dredged. There are anchor buoys there. There are facilities for near term pre-positioned ships that are there, NTPS, of which we keep about one-third underway at the time.

There are some ordinance storage facilities. Communications have improved. We have a Marine company in Diego Garcia right now for the internal security of the area. There has been clearly a buildup from just a pasture, if you will, to the point where you now have a modern facility.

You can get from one place to the other, you have the communications, you have the support, you have the logistics supplies there. So that is moving along well.

I am pleased with the progress of the facilities there. It is looking good and I am satisfied with the progress right now.

For facilities in support of personnel on the islands if you will. There are some clubs there, for enlisted and officers, for the merchant marines who are often on the ships in the harbor. There is a lot of self-help that is going on. These facilities are austere at best. There is a lot of jogging that goes on around there.

Senator EXON. Around here, too.

Admiral FOLEY. Yes sir. That is not all bad either.

Out there we now have about a hundred women doing their 1-year tour. On repair ships that are there, we have a number of women, both officers and enlisted, assigned in the ship's company.

So, we have a blend of both men and women and the general atmosphere has changed to some degree. The language has improved tremendously, I can tell you that, as one example. [Laughter.]

I will give you another example. I walked around about 10 o'clock one night and checked across the clubs—for example, there is a place that sold beer out there—to see have we got real hangouts? Do we have real gin mills out there or do we have a place where people drop in and have a beer and hit the sack early because they are getting up in the early morning to start the day?

I found our flight crew who had brought us in there sitting there having a couple of beers because they were not leaving the next morning, but I did not find major numbers, one or two only, of officers, enlisted, merchant marines or anybody else hanging around there drinking.

That I regard as an excellent indication that people are working hard.

Senator **Exon**. What are those sailors doing? [Laughter.]

Chairman **Tower**. Well, after the jogging? [Laughter.]

Admiral **Foley**. I will tell you what they are doing. First of all, the Seabees are building facilities there. The sailors that are there are again working in the warehouses, working on the ships that are there in the harbor, the flight crews are working on the P-3's that are flying out there all the time.

From a rural austere base, it has worked up to a pretty fine facility, but there are very strict controls in there by the leadership on the island. So I am encouraged.

Senator **Exon**. Admiral, my time is up. Let me say what I was referring to is that last year the chairman and I discussed and we were advised that there were very austere facilities for baseball fields, things of that nature.

We provided some money. I am wondering whether or not it came through. If you could add to that for the record, I would appreciate it.

Admiral **Foley**. I can, sir. The recreation facilities are improving and increasing all the time. I walked through them there and they are pretty good.

[The information follows:]

RECREATION FACILITIES

The fiscal year 1983 MILCON authorization bill, as amended by Senator Exon (D, NE), restored $6,015,000 for projects at Diego Garcia as follows:

	Millions
Gymnasium	$4.0
Handball courts	.75
Volleyball courts	.508
Basketball courts	.445
Tennis courts	.312
Total	6.015

The program is being included in the RBRM contract by change order. PACFLT is presently awaiting the business clearance. All designs are essentially complete.

Chairman **Tower**. I will yield to Senator Metzenbaum of the Budget Committee who has been attending this hearing.

Senator **Metzenbaum**. First, let me make a prefatory comment.

General Barrow, I don't think I have ever heard a more moving statement presented to any committee before this Congress or any other place. I commend you very highly for it, sir.

Second, Mr. Chairman, I would appreciate it if I could be given the opportunity to submit some questions to the Secretary and afforded the opportunity to have my questions and his answers included in the record.

Chairman **Tower**. The Senator from Ohio certainly may submit questions for response for the record.

Senator **Metzenbaum**. Thank you.

Chairman **Tower**. Senator Warner?

Senator **Warner**. Maybe we should send a few marines to Diego Garcia to liven it up a bit.

General Barrow, I certainly want to join in the most appropriate references to your distinguished career. I think I observe you will be the last combat officer of World War II to serve as Commandant in the Marine Corps in all likelihood.

I want to add further that I think this tribute that was paid today by members of this committee and others would be equally applicable to the service performed by Mrs. Barrow. She has been a most distinguished first lady in the Marine Corps.

Mr. Secretary and chiefs, the questions that I am about to raise I consistently put to the Secretary of Defense and the service secretaries and they relate to the contemplated budgetary actions that will he taken on the floor of the Senate followed by the presentation of this authorization bill and the likelihood of a number of our colleagues addressing areas within the budget with which we could achieve savings.

There is a direct correlation to our military spending as it relates to the economy. While we have had indications that the economy is improving, I do believe that there is obligation on the Congress to scrutinize this particular fiscal year budget more closely than any before with respect to those savings.

In that context, I will ask the chairman to submit for the record a letter that I have written to the Congressional Budget Office which sets forth more clearly my reasoning for examining the possiblity of reducing the end strength of the active services with corresponding increase in the Reserve and the Guard.

[The letter referred to follows:]

U.S. SENATE,
Washington, D.C., February 18, 1983.

Dr. ALICE M. RIVLIN,
Director, the Congressional Budget Office,
Washington, D.C.

DEAR ALICE: Recently the Majority Leader of the Senate, Howard Baker, was quoted as anticipating a reduction of approximately $15 billion from the total requested by the Department of Defense for fiscal year 1984.

To the extent that his statement reflects a present consensus within the Senate, I feel obligated, as a member of the Armed Services Committee, to make an independent assessment of the areas within the budget where such reductions could be taken with a minimal degradation in our overall defense capabilities.

I have uniformly supported the President's effort to strengthen our military capabilities. I believe his objective to be fully justified in view of the long-term projections comparing capabilities of the United States and its allies with the Soviet Union and the Warsaw Pact.

The momentum behind defense reductions is predicated on the assumption that our overall national defense can be no stronger than the foundation upon which it rests—the vitality of our economy and the people who are and can make it work better. As of today, there are favorable indications that the economy will improve and that efforts by Congress to reduce the projected deficits—approaching $200 billion—will add to the momentum of this recovery.

In my brief service in the Senate. I have witnessed far too many key defense decisions made hastily through the amendment process on the floor—often in the hours between midnight and dawn. I am hopeful that this time we can avoid such ill-conceived legislation and be prepared to address amendments fairly and objectively with pre-prepared record.

During the appearance of the Secretary of Defense before the Committee on Armed Services of the Senate on February 1, 1983, I raised, as an option, the possibility of reducting the end-strengths of the various Services by 5 percent, coupled with an increase in end-strength of the Reserve and Guard. I am not committed to this course, but believe a reduction of end-strength or force structure coupled with an increase in the Reserve components, to be worthy of careful analysis. This might allow for some savings and an increase in pay while substantially maintaining readiness, required procurements and funding for operations and maintenance.

The elimination of a pay increase concerns me as it would halt the momentum we have gained over the past three years in closing the pay and benefits comparability gap between the uniformed members of the armed services and their counterparts in the private sector.

While the procurement accounts may well bear a portion of a reduction in defense spending, I believe it would be unwise to take the total cut from weapons programs. I am optimistic that within the next 24 months the economy will strengthen to the extent that it will support these necessary programs. As you well know, abrupt cancellations trigger contractor reimbursements and the net savings are substantially reduced. Once production lines are closed, it is exeedingly difficult to find the trained personnal to start them up at a later date.

Likewise, I am hopeful the O&M account bears a minimal, if any reduction. The force structure that we have in place should be equipped, trained and maintained to the best extent possible.

I would appreciate an evaluation by the Congressional Budget Office of the alternative I have suggested. I have always found the CBO's in-depth analyses of major issues to be extremely helpful. I would be happy to share with you information I have obtained from the Department of Defense and others relative to this proposition.

With warm personal regards,
Sincerely,

JOHN W. WARNER.

Senator WARNER. What concerns me, Mr. Secretary, is if the cuts fall in totality upon the procurement account or indeed upon the O&M account, that the degradation to our military posture will be more severe than if they were spread in some manner across the entire spectrum of the defense budget.

Of course, that spread to personnel account, which determines the cash flow, can generate the quickest dollar since in excess of 50 percent of our spending is in that area.

I join with the chairman and others in indicating our reluctance to see the pay and benefits part of the personnel account take the brunt of any cut. Rather, it seems to me that we should consider the alternative of reducing active strength and shifting that military capability to the extent possible to the Guard and Reserve.

I would like to ask your view on that option.

Secretary LEHMAN. Senator, first I would like to say that I understand what you are saying, but I have failed to follow the logic that, because the economy is in difficulty, we should start laying off 40,000 working defense workers for every billion dollars that is cut out of defense, particularly if those cuts are used to further finance the $8.7 trillion 5-year domestic and social projects spending plan. So, I cannot give any support to the idea that the state of the economy gives legitimacy to the requirement to cut. I think the defense budget is too low; but I understand the balance that has to take place.

As to taking the cut in end strength for the Navy and Marine Corps, this would be very damaging to us because we are a forward deployed service, the Navy and the Marine Corps.

As a drilling reservist, I find it dismaying to think of depending on the Ready Reserve for 6 months' deployment in the Indian Ocean. The only alternative, then, is to replace shore billets with reservists, and to a certain extent we have already done a great deal of that. However, what this does is throw an increased burden on the already overburdened time away from home and at sea for the remaining active force.

With all due respect, sir, I think that is a bad idea. I fully support the very helpful initiative that you, in particular, have helped to articulate for improving the Reserve force and for putting more of the operational burden on the Reserve.

We are taking great strides to carry out your intents with what we call the horizontal integration of Reserves. That is why it is so important that we put F/A-18's and other aircraft, that are deployable on active fleet carriers, into the Reserves. It is why we are significantly increasing the number of billets for our known prior service program.

Senator **Warner**. If you will ease up here, I need all my time. I share those sentiments. I recognize the managerial problem of rotation.

Again, as I look over the national statistics, the worldwide statistics, for every active person in the armed forces of NATO there are 1.5 reservists.

For example, Warsaw Pact, 1 active, 2.3 reservists; U.S.S.R. 1 active and 1.3 reservists, whereas the U.S. ratio is only four-tenths Reserve and Guard as opposed to every active individual, showing that we are totally out of balance with the other military forces in the world, recognizing, however, it is driven by the forward deployment concept of our defense.

The Navy in the totality of our services is the lowest. The Army has basically a ratio of 1 to 0.8. The Air Force 1 to 1.28, whereas the Navy is 1 active to 0.19 reservist.

Again that may be because of the forward deployment. I do believe we have to make a conscious effort to strengthen the Guard and Reserve and that if the budgetary restrictions are imposed in this particular fiscal year and perhaps the next one that indeed, in my judgment, is an area we should look at.

I turn to a different subject now and that is a report that was issued by Mr. Bundy, Mr. McNamara, Mr. Vance and former Chief of Naval Operations, Admiral Zumwalt, dated February 28.

UNREALISTIC STRATEGIC OBJECTIVES

I have studied this with considerable interest. They propose a $136 billion reduction over the next 5 fiscal years. In essence, their report states that our stategic objectives are unrealistic and that we have too much duplication between the services, and last and the most troublesome aspect of this report is that we are compelling the active forces to accept new equipment and modernization at a rate that is unrealistic.

What comments might you have to these criticisms?

Secretary **Lehman**. First, they don't surprise me since those were basically the policies applied by those folks when they were in office and why we have the depth of the problem we have today with the deficits that we have to fill.

Again, their facts are quite wrong. We have today, as the CNO has said, insufficient stocks of our main threat weapons to fill out every ship in the fleet even once. We have today no combat attrition aircraft for backing up our front line tactical forces. There are deficits in every account and the fact that we can't spend the amount of money that is being given us is, of course, nonsense.

Senator **Warner**. Earlier today we had the pleasure of joining you for breakfast. You stressed the point which I think bears repeating here and that is your present force structure is such that you are not able to fulfill the worldwide commitment imposed on you as a matter of law. Is that correct?

Secretary **Lehman**. That is correct, sir.

MILITARY STRUCTURE

Senator **Warner**. Returning to this report of these gentlemen, though, they stress the this which I have found to be one that has a lot of credibility. That is that the military structure of the United States is a sort of salute and march-off, can-do organization.

When a new administration takes over and provides a level of funding, they will do their very best to meet those commitments, provide for their people and the modernization within those figures.

The problems arise when we reach the cyclical situations where we start up, ramp up quickly and then have cuts and wasteful drawdowns and then ramp up again.

It seems to me the Congress should address the question of what is the rate of growth that can be sustained by our economy over a period of years and indeed, hopefully transcend more than one administration.

As I read this report, the underlying thesis is that about a 5 to 6 percent rate of growth is the maximum that we could expect at this particular time in our economic history.

Do you agree or disagree with that?

Secretary **Lehman**. I disagree, Senator. That thesis is a kind of Marxist economic determinist view that there are somehow iron laws of economics.

Senator **Warner**. Is this my question you are referring to? [Laughter.]

Secretary **Lehman**. I am sure you were not espousing what you were asking me about because I know you don't believe in the inevitability of percentage figures and iron laws of economics.

Senator **Warner**. No, Mr. Secretary, but I do believe in a constant rate of growth and I support the President that we should be augmenting the funding, but my experience, having sat in your seat for over 5 years, I have witnessed the wasteful procedure that results not only in procurement, but in personnel with rapid cyclical adjustments, in your annual funding profile.

Therefore, there is merit to addressing a funding profile that can be sustained over a period of years.

Secretary **Lehman**. I believe the President has submitted such a sustainable program, Senator. I think it can be sustained and it must be sustained.

Senator **Warner**. Mr. Chairman, I have been notified my time is up.

Thank you, Mr. Secretary.

Chairman **Tower**. Senator Levin?

Senator **Levin**. Mr. Chairman, thank you.

First, let me add my compliments to General Barrow for his service to his country and for his statement here today. He is a great patriot. We will miss him. I hope he misses us, too, a bit.

I was going to associate myself with Senator Warner's question before I heard the answer. [Laughter.]

I would like the record to show in no way do I associate myself with Senator Warner's question. [Laughter.]

Admiral, you talked about those clubs at Diego Garcia, that at 10 o'clock they were empty. I am wondering whether the thought crossed your mind that you were early. [Laughter.]

Admiral FOLEY. You are asking that as a question? [Laughter.]

DEPOT MAINTENANCE BACKLOG

Senator LEVIN. Admiral Watkins, let me ask you a serious question. You have indicated that you have eliminated the depot maintenance backlog this morning.

In the unclassified portion of an unwise secret force readiness report which we just got a few days ago it indicates that we have some pretty significant backlogs in the aircraft depot maintenance.

Why is there a discrepancy between these figures showing we have $241 million backlog in 1984, $277 million backlog in 1983, compared to a very small backlog in 1981 and 1982?

Admiral WATKINS. As you know, Senator Levin, we are now undergoing a 1-year experiment where ceiling points have been lifted on our industrial fund personnel so that we can demonstrate whether or not it is cost effective to allow the ceiling points to float against the authorized rework that has to be accomplished.

Prior to this year we have not been authorized the necessary manpower to execute all of the organic depot backlog. For 1983 we now have that ceiling lifted. I hope we can demonstrate that we can clean out the funded organic backlog because that is our plan. With manpower and funding in balance we think 1983 will be a watershed year demonstrating our capability in that regard.

Senator LEVIN. Part of the backlog you say can't be reduced, is that it?

Admiral WATKINS. No, sir, I think all of it can be reduced. That is our plan. We would hope that we would have some demonstration of that early enough in fiscal 1983 so that perhaps it can affect judgment for fiscal 1984.

Senator LEVIN. You are not changing those figures then of shortfall?

Admiral WATKINS. No, sir, we are not changing the shortfall figures at this point, but we don't have all the data in yet.

NAVY FLYING HOURS

Senator LEVIN. On Navy flying hours you have indicated and the Secretary of Defense indicated in his posture statement that there is a decrease in training rates for tactical air crews. Is that true?

Admiral WATKINS. In fiscal 1984 we have imposed an adjustment on the primary mission readiness of Naval aviation by a couple percentile points to put it in balance with the realities of the maintenance schedule which has been funded. Those have been put into balance. They are a modest change. We believe we can live with that.

It does not affect the mission capability rate of our squadrons or aircraft which are projected to improve. It is an adjustment.

We are projecting a full 88 percent PMR readiness for our air crews by 1987, some of which are, as you know, simulator hours.

We would like to see more, but we have to balance that with the aircraft maintenance schedule which has been funded and with the various outlay adjustments we have had to put that in balance.

Secretary **Lehman**. We are keeping our flying hours per aircrew at about 25 hours a month, which is well above the Air Force and very high above the allied air forces and Soviet air forces. We have very ready air crews.

Senator **Levin**. My question to the Admiral is whether or not you have decreased the training rate for any reason of your tactical air?

Admiral **Watkins**. Yes, sir, as previously indicated.

PRIMARY MISSION READINESS

Senator **Levin**. What does the Secretary of Defense mean in his 1984 posture statement that the Navy has been forced by recent fiscal restraints and relative priorities on the program, a decreased training rate for tactical air crews?

How is that consistent with the most recent answer?

Admiral **Watkins**. I think the focus on PMR has been the issue. It is a syllabus which the air crews must follow to reach certain specific levels of training readiness. I think the hours that they fly which the Secretary referred to are the most critical in terms of our ability to execute our commitments worldwide and those seem to be about steady.

I believe there is too much focus on the PMR aspects which are very technical syllabus related, self-imposed. It is an important objective, but not one we should necessarily adhere to specifically measuring training rates.

[Additional information follows:]

To further clarify this issue, the following additional information is provided:

As indicated in the SECDEF report, the Navy has been forced by recent fiscal constraints and relative priorities to program a decrease in the peacetime training rates for its tactical aircrews. The readiness measure that the Department of the Navy uses to judge the adequacy of aircrew flight training roles is Primary Mission Readiness (PMR). PMR is expressed as a percentage of the total hours required to fly all the command syllabus training flights designed to achieve optimum readiness. The PMR goal is established at 88 percent to take into account nonaccomplishment for reasons of weather, availability of range facilities, and other factors. The table below depicts actual PMR rates for fiscal year 1982 and the level of PMR financed in fiscal year 1983 and fiscal year 1984. These figures all include 2 percent flight hours done in simulators. Additionally, the annual hours per crew can be used as a measure of activity. This is the statistic Secretary Weinberger referred to in his annual report. The table below shows that like PMR, annual hours per crew has decreased. The data is different because at the time the SECDEF report was staffed, final dollar controls and aircraft force levels were not finalized. OSD staffers had no choice but to estimate numbers.

FISCAL YEAR 1984 PRESIDENT'S BUDGET FLYING HOURS

TACAIR/ASW (in hours)	Fiscal year		
	1982 actual	1983 estimate	1984 estimate
Flying hours	837,677	832,738	825,298
Annual hours per crew	288	280	276
Primary mission readiness (PMR)[1] (percent)	83.6	83.0	82.1

[1] Includes 2 percent simulator contribution.

Senator LEVIN. I just want to know whether or not the rate has decreased.

Secretary LEHMAN. I would ask the deployed fleet CINC.

Admiral FOLEY. In the 1984 budget as I read it in amplification on what Admiral Watkins said, I am responsible for the safety, for the training, for the execution of these aircraft when they come on a carrier. I am comfortable that we have sufficient flying hours there to be safe, to be professional and proficient and that the instant I feel that we are not, Admiral Watkins and the Secretary will know that.

Right now I am comfortable that those rates are adequate.

Senator LEVIN. Have they decreased?

Admiral FOLEY. We are talking only PMR, the primary mission readiness. Training for deploying squadrons has not decreased.

Senator LEVIN. Has the training rate for the tactical air crews decreased?

Admiral FOLEY. Are you asking me if there is——

Senator LEVIN. Yes; what the Secretary of Defense means when he says the training rate for TAC air crews has decreased. Has it or has it not? I am not asking whether you are comfortable, whether it is safe or anything else. I simply want to know was it decreased?

Admiral FOLEY. The answer is yes.

Senator LEVIN. Thank you.

READINESS PROCUREMENT

Do we have in readiness spares a shortfall of about $277 billion in 1984?

Admiral WATKINS. Yes; I think that is about right.

Senator LEVIN. Do you know whether the 1981 shortfall would have been about $211 billion? I know this is less than the last 2 years, 1982 and 1983. But is it greater dollarwise than it was in 1981?

Admiral WATKINS. I will have to provide that for the record.

Senator LEVIN. You will provide that for the record. I would appreciate it.

[The information follows:]

For clarification, I understand your question to concern the O&MN depot maintenance backlog we discussed previously and I will answer it in that context. Our fiscal year 1981 aircraft depot maintenance backlog (excluding modification installations) was $40 million. In fiscal year 1982, this backlog increased to $119 million. We anticipate that it will further increase to $279 million in fiscal year 1983 and then decrease to $241 million in fiscal year 1984. The backlog projection for fiscal year 1984 is based on the funding requested in the President's budget and the assumption that industrial fund personnel levels will again be constrained as they were prior to fiscal year 1983.

Senator LEVIN. Now, Mr. Secretary, you have indicated and the President has indicated basically that we have had a decade of neglect. You phrased it, I believe a few yers ago that the Soviet Union has built three times as many major war ships as we have so that after a decade of these adverse trends the narrow margin of superiority is gone. That is the way you phrased it.

The President of the United States said that there has been a decade of neglect. I asked the Congressional Research Service to give me a summary of Navy ship acquisitions, comparing the United States and our allies with the Soviet Union and its allies, and its conclusion is, and they have gone through 13 different categories of ships, we outbuilt them in more categories than they outbuilt us.

But the bottom line, including the support ships where they are way ahead of us, is that they built 367 ships, we built 349 ships. So they built a few more ships, but that our tonnage was greater than theirs.

Would you agree with that overall assessment in the 1970's?

Secretary **LEHMAN**. I will be happy to provide our figures for the record. It sounds roughly about right because we are including alliances in some 40 treaty relationships that are spread all over the world and all the Latin Americas, in the Rio Pact, ANZUS, Japan, Korea, and the gross tonnage and the numbers of each of those countries all total up against the Soviet Union.

[The information follows:]

Between 1970 and 1979 the U.S. produced 105 combatant ships and submarines displacing 739,010 tons, while the Soviets produced significantly more: 203 ships displacing 1,092,805 tons. U.S. allies (NATO and three Pacific allies: Japan, Australia and New Zealand) produced 162 combatants displacing 430,079 tons, while non-Soviet Warsaw Pact countries produced 11 displacing 13,700 tons. It should be noted that between 1970–79 our allies built no ships of the types that form the backbone of naval battle forces (carriers and cruisers), and they built only a handful of nuclear submarines. Including amphibious ships, underway replenishment ships and large tenders, the U.S. and its allies produced 341 ships, while the Soviets and their allies produced 308.

Navy figures comparable to those provided to Senator Levin by the Congressional Research Service are provided below for the record. The Navy figures are based on full-load instead of standard tonnages, and they group ships according to DIA categories. Two sets of totals are provided, one for combatants and one for combatants plus amphibious ships, underway replenishment ships and large tenders. (The last three types are sufficiently dissimilar in configuration from combatants that full-load tonnage totals combining the four types are misleading). Following the figures for 1970–79, a similar set of figures is given for 1980–82. Ships built for export are not included.

These figures do not include a significant part of the Soviet Navy for which the U.S. Navy has no counterpart: a large force of patrol ships and craft, mine warfare ships and craft, landing craft, and miscellaneous auxiliaries. The Soviet Navy built 579 ships in these categories between 1970–79, while the U.S. Navy built only 11.

UNITED STATES, ALLIED, AND SOVIET NAVAL SHIP CONSTRUCTION 1970–79

[Number/tons]

Multipurpose aircraft carrier (CVN):	
U.S.A	2/182,800
NATO	
PAC	
U.S.S.R	[deleted]
Cruisers (CG/CGN):	
U.S.A	5/53,300
NATO	
PAC	
USSR	[deleted]
Frigates (FF/FFG):	
U.S.A	43/175,310
NATO	32.98,572
PAC	7/19,240
U.S.S.R	[deleted]
Ballistic missile submarines (SSBN):	
U.S.A	
NATO	4/30,000
VSTOL aircraft carrier (CVH):	
U.S.A	
NATO	
PAC	
U.S.S.R	[deleted]
Destoryers (DD/DDG):	
U.S.A	25/195,000
NATO	25/121,964
PAC	5/26,700
U.S.S.R	[deleted]
Corvettes (FFL):	
U.S.A	
NATO	20/26,844
PAC	11/19,800
U.S.S.R	[deleted]
Nuclear attack submarines (SSN, SSGN):	
U.S.A	30/132,600
NATO	8/34,200

UNITED STATES, ALLIED, AND SOVIET NAVAL SHIP CONSTRUCTION 1970-79—Continued

[Number/tons]

PAC	
U.S.S.R	[deleted]
Diesel Attack Submarines (SS):	
U.S.A	
NATO	41/35,749
PAC	9/17,010
U.S.S.R	[deleted]
Auxiliary ships: underway replenishment	
U.S.A	13/383,600
NATO	13/205,280
PAC	1/5,000
U.S.S.R	[deleted]
Total combatants 1970-79	
U.S.A	105/739,010
NATO	130/347,329
PAC	32/82,750
U.S.S.R	[deleted]
PAC	
U.S.S.R	[deleted]
Amphibious Ships:	
U.S.A	35/524,236
NATO	2/2,818
PAC	6/10,580
U.S.S.R	[deleted]
Auxiliary ships: material support	
U.S.A	3/68,256
NATO	1/10,250
PAC	
U.S.S.R	[deleted]
Total number of ships:	
U.S.A	156
NATO	146
PAC	39
U.S.S.R	[deleted]

UNITED STATES, ALLIED AND SOVIET NAVAL SHIP CONSTRUCTION 1980-82

[Number/tons]

Multipurpose aircraft carrier (CVN):	
U.S.A	1/91,499
NATO	
PAC	
U.S.S.R	[deleted]
Cruisers (CG/CGN):	
U.S.A	1/11,000
NATO	
PAC	
U.S.S.R	[deleted]
Frigates (FF/FFG):	
U.S.A	22/79,310
NATO	14/51,365
PAC	3/10,910
U.S.S.R	[deleted]
Ballistic Missile Submarines (SSBN):	
U.S.A	2/33,200
NATO	1/7,500
PAC	
U.S.S.R	[deleted]
Diesel attack submarines (SS):	
U.S.A	
NATO	6/8,024
PAC	3/5,550
U.S.S.R	[deleted]
Auxiliary ships: underway replenishment:	
U.S.A	4/110,000
NATO	2/35,600
PAC	1/3,250
U.S.S.R	[deleted]
Total combatants 1980-82:	
U.S.A	46/353,110
NATO	43/153,982
PAC	9/31,350
U.S.S.R	[deleted]
VSTOL aircraft carrier (CVH):	
U.S.A	
NATO	2/39,620
PAC	
U.S.S.R	[deleted]
Destroyers (DD/DDG):	
U.S.A	9/72,200
NATO	6/24,740
PAC	2/13,600
U.S.S.R	[deleted]
Corvettes (FFL):	
U.S.A	
NATO	12/16,298
PAC	1/1,290
U.S.S.R	[deleted]
Nuclear attack submarines (SSN, SSGN):	
U.S.A	11/66,000
NATO	2/6,435
PAC	
U.S.S.R	[deleted]
Amphibious ships:	
U.S.A	1/39,300
NATO	1/1,600
PAC	1/5,800
U.S.S.R	[deleted]
Auxiliary ships: material support:	
U.S.A	5/114,400
NATO	
PAC	
U.S.S.R	[deleted]
Total number of ships:	
U.S.A	56
NATO	46
PAC	10
U.S.S.R	[deleted]

Senator **Levin**. Do you believe it is fair to include the allies of each of us in comparing the national growth?

Secretary LEHMAN. I have testified repeatedly that it is a meaningless exercise to stack up static indicators of tonnages and ships to say who is ahead. That is not what maritime superiority or lack of it means. Rather, it asks what is the Soviet task and how are they equipped to deal with it and what is our task and how are we equipped to deal with it? The Soviets are better equipped to do their task which is to interdict our vital sea lanes.

Senator LEVIN. Thank you.

Would you like for the record to take a look at this Library of Congress report which shows that in the majority of categories that we and our allies did better than they did? As a matter of fact, in close to a majority of the categories we alone did better than they did.

Chairman TOWER. Senator Cohen?

Senator COHEN. Thank you, Mr. Chairman.

General Barrow, I will add my own compliments that have been given to you today from your statement. I say even though this is your final hour before the committee, it was not your finest. Your finest came 2 years ago when you came before the committee and testified, the subcommittee which I chair, at that time, to testify on behalf of setting up a separate unified command of the Rapid Deployment Force.

You did so at the time when it was calculated inevitably to bring you great criticism for being quite so forthright and candid. Your courage and commitment to saying and doing what is right, regardless of the consequences stands, in my mind, as your finest hour always before the committee.

I appreciate your being here today. We too will stay in touch on that island that you intend to retire to.

Admiral Watkins, I will direct my questions to you because I think I will have more time to ask my questions if I do that. I hear the Secretary is getting prepared for a Senate career. [Laughter.]

MORALE OF U.S. TROOPS

Morale is important to the readiness of our troops and our sailors. About a year ago I visited the Middle East. I found there had been a decrease in the port visits of our Navy into Haifa. There was some complaint about the impact on morale. I inquired about it and, as a result of the inquiry, was told the port calls were then reinstituted.

I am now told they have been discontinued. Is that a recommendation that came from the CNO?

Admiral WATKINS. No, sir, it is not.

Senator COHEN. Is it a recommendation that came from the Secretary of the Navy?

Admiral WATKINS. No, sir. I am not familiar with any recommendation from the Navy regarding port visits. That is a function of the Commander in Chief, Europe, and how he decides to port visit the ships that are in the Eastern Mediterranean. He has elected to either leave them at sea or bring them back for maintenance operations in the Greek-Italian area in lieu of taking R and R visits when they really need the upkeep time and Haifa is not a place for that kind of upkeep. We can't get the kind of logistics support or necessary depot maintenance required there.

We minimize port visits. When we do a port visit we go to areas where we can get better upkeep programs for our ships.

Senator COHEN. Where are those port visits now?

Admiral WATKINS. Athens and Naples primarily, sir, and also perhaps sometimes in Izmir, Turkey.

Senator COHEN. Do you think that is in the best interest of the sailors and marines on board, as well as providing the best opportunity for making the repairs that are necessary?

Admiral WATKINS. The sailors think Haifa is probably one of the finest port visits in the Mediterranean, without question. If you ask the sailors, they will say Haifa.

Senator COHEN. It beats Abu Dhabi?

Admiral WATKINS. If we keep momentum going on the repair programs, I think they will waive the Haifa port visit comfortably.

Senator COHEN. Let me ask you this, Admiral.

MAVERICK

Secretary Lehman indicated that the Israelis were quite successful in recent conflicts they had with the Syrians with an 80 to 1 kill ratio. We had General Creech who came before the committee a few days ago talking about the benefit of having the Maverick missile which has come under some criticism by CBS as an unnecessary and an inefficient weapon system.

General Creech came to the defense of the Maverick by pointing out in 1973 in the Israeli-Egyptian conflict, that the Israelis made great use of that particular weapon system.

I then inquired as to whether or not he felt as a military man the sharing of technical information between allies is of importance to this country. He indicated that quite clearly it is. There has been no sharing of the information following the recent Israeli conflict with the Syrians.

Would you agree with General Creech that it is important from a military perspective to share information with our allies who recently have been engaged in conflict, such as the British in the Falklands—it is important to learn what efficiencies, what performance capabilities, the Israelis acquired during their recent conflict where they were able to achieve an 80 to 1 kill ratio?

Admiral WATKINS. I believe it is important. We did it extensively with the Royal Navy. It has been a great help to us.

On the other hand, I hesitate to inject myself into the present controversy as to what perhaps the quid is for the kind of arrangement that we were able to negotiate with the British very easily.

I think it would be inappropriate for me to put myself into the position between the Secretary of Defense and what he is trying now to do.

As I understand, there is perhaps a hope for getting this kind of information with a reasonable arrangement for the United States.

Senator COHEN. Let me say for the record that we had such an arrangement with the Israelis back in 1973. I have had the opportunity to see the Memorandum of Agreement [MOA] that was signed in 1973. I have seen the proposed MOA for 1983 and there was virtually no distinction.

The statement that I have seen in the press indicated to the contrary that somehow, unreasonable quids had been imposed. That assertion simply is not supported by the facts. So, I would suggest that there are other factors that are political in nature and have nothing to do with the restrictions placed by the Israelis on what we could do with that information.

Admiral Foley, do you think it is desirable to have access to that information?

Admiral **Foley**. Absolutely.

Senator **Cohen**. I have also talked with our intelligence people. They feel it would be important to have access to that information. I hope we can urge through some sort of public dialogue that we exchange that information with the Israelis so that we can benefit from it and make whatever improvements are necessary.

Admiral Foley, earlier I mentioned General Barrow's role in helping to establish a separate unified command for the Rapid Deployment Force at a time when that was fairly controversial. I notice that the U.S. Central Command has a geographic responsibility in the Persian Gulf and Southwest Asia region.

I am somewhat puzzled as to why the adjacent waters of the Indian Ocean, at least part of the northwest quadrant of the Indian Ocean, are not included within that U.S. command.

Why was that excluded from this new unified command?

Admiral **Foley**. Of course you are asking the wrong source. I provide the Naval forces in support of the Central Command. General Kingston and I have no problems with the geographic breakdown as it is right now.

The initial decision as to whether or not the Red Sea and Persian Gulf would be included as all the water under the Pacific Command or whether Indian Ocean would be allocated to the Central Command is a decision made by the JCS, the Secretary of Defense and the Presidential authority.

I am in the execution end and not in the determination end, sir.

INDEPENDENT COST ESTIMATES

Senator **Cohen**. Secretary Lehman, at the risk of violating my own rule, you mentioned in response to Senator Nunn that we should get a hand on these independent cost estimates in order to have access to them. My understanding is that Congress does not have routine access to the independent cost estimates which are available to the Department of Defense.

Would you recommend a policy that when we make our evaluations of budgetary matters, we should have access to those independent cost analyses done for the Pentagon?

Secretary **Lehman**. Within the overall balance of the proper procedures, yes, I think the committees ought to have access to the independent costing, but also bearing heavily in mind the problem of self-fulfilling prophecy as well, particularly in development programs.

Senator COHEN. You also indicated that something has to happen to the program manager or the contractors. I was thinkin in particular about the Tomahawk missile program.

What will happen in that case, for example, where there is a substantial cost overrun? How will that be allocated for accountability and penalties? What is going to happen there?

Secretary LEHMAN. Unfortunately, the Tomahawk program is a good case study in how not to develop a system from a business standpoint. It was set up under an executive committee outside the services. It was structured without a prime contract with a series of subs and really run by the executive committee. We have to bear some blame for the problems because we were very slow in the Navy on the uptake, like a year slow, when it was turned back over to the services. It took us that long before we actually realized the extent of the difficulties.

I believe, now after having taken a hard look and reorganized the program, that we have the right management and there is accountability. Alas, there is no one person or company to point the finger at regarding the problems of cost overruns in that program right now and that is one of the problems.

Senator COHEN. One final question.

NAVY SHIP LEASING PROGRAM

Could you perhaps give us a summary of the arguments in favor of the controversial leasing program the Navy has undertaken?

Secretary LEHMAN. Yes sir. I believe this is one of the best sound management initiatives, that will end up saving the taxpayers a great deal of money and at the same time bring into being probably a full decade before otherwise possible, the full 13-ship maritime pre-positioning force.

As you know, all 13 of them are under contract. This has been done through the contracting for services. It is not, strictly speaking, a lease. It is a contracting of services. As a result, we have realized tremendous savings by interjecting competition where some 55 bids were submitted as opposed to the original estimate of about 5.

The actual contract price for the ship construction came in $30 to $40 million lower than what was in the budget that President Carter submitted in 1981.

In addition, the life cycle costs, according to the Treasury Department and OMB, are in the range of 5 percent above to 15-percent below what the costs of procurement would be. So the net savings to the taxpayer agreed by all agencies of Government, are about $28 billion per ship including the loss to the Treasury of $6.8 million for loss tax revenues. So, clearly it is a very good deal. Not only in that it has saved at least three shipyards from going out of business but it pumped jobs in the economy by taking advantage of the competitive environment. It was one good deal.

Senator COHEN. My time is up. Thank you.

Chairman TOWER. Senator Bingaman?

Senator BINGAMAN. Thank you, Mr. Chairman.

Let me add my accolades to you, General Barrow. Someone told me when I arrived here most testimony went from the person testifying to the notes of the committee without passing through the heads of either one.

Your testimony is a distinct exception to that. I think it is to your credit.

NAVY PRODUCTION LINES

Let me ask Secretary Lehman—I was not here, of course, last year for the discussion—which of the various production lines was your candidate to be eliminated which you were prohibited from eliminating?

Secretary **Lehman**. It is kind of pouring over past history. I think what I did not get a chance to say in reponding to Senator Goldwater is that from a readiness and modernization standpoint I support all of the production lines that we now have in the Department of the Navy.

The program I was talking about was the P-3C where we have over 400 P-3 airplanes and were faced with a proposal that because of low rate production, the cost per airplane of additional airplanes was very high, prohibitively high we intended to shut down the line. But as a result of our intention to cancel the program, Lockheed undertook some major management reforms and the Secretary of Defense had some discussions with some potential foreign buyers that then firmed up their buys. The result is that we now have an affordable airplane. The unit cost has come down considerably and we now have a program, even though it is at a low rate, about six and five per year, that makes good sense to continue. That is the history of it, and we support the program now.

AIRCRAFT CARRIERS

Senator **Bingaman**. Let me ask about the carriers that we authorized last year. I gather one of the proposals or suggestions that the group of Secretary McNamara and others has made is that we should not go ahead with those two carriers.

What would be involved in cancellation costs were the Congress to take that recommendation and not go ahead with those two carriers?

Secretary **Lehman**. As you know, that buy involved a very innovative multiyear procurement strategy. It was debated here in this committee and other committees for 2 straight years up until last September and voted on at least a dozen times. It is a very sound business way of procuring support by military requirements. We are spread too thin, we need more carriers.

If Congress were to reopen last year's budget and consider recision, there is no question the outlay stream for the next 3 years would be higher by canceling than by going ahead with it. The outlay stream this year is only $25 million for the second quarter. More importantly, commitments have already been made, because it is not really a two-carrier buy, it is in large measure a three-carrier buy because the two-carrier buy was made possible by a renegotiation with Newport News regarding the already appropriated CVN-71, the *Theodore Roosevelt.* Newport News agreed to a 14-month earlier delivery at $100 million reduction in price, betting that Congress would proceed with the two carriers. That way they delayed and bought future long-lead in subcontractors and especially in metals, subsystems and so forth, to be able to buy them on a three instead of a one of a kind basis.

So you really enter a mare's nest of contracts that are already written and money already being spent. There is only one contract for two carriers that was signed on December 29. So what it would guarantee would be a return to the 10 years of litigation and claims against the Navy that we are free of for the first time in many, many years. It cost taxpayers $2.7 billion just to settle those claims and pay for all the corporate lawyers to get the whole mess behind us. We would enter right into the same disaster. My prediction would be that after it was all over 5 or 7 years from now, and the last case adjudicated, the total outlay to the taxpayers would be higher than proceeding to buy the ships.

[Additional information follows:]

Secretary LEHMAN. As the cornerstone of the Navy's rebuilding program, two nuclear aircraft carriers were requested of Congress in the fiscal year 1983 budget. This request generated considerable discussion and was subjected to numerous authorization and appropriations votes at the subcommittee and full committee level and on the floor of both the House and Senate. In all cases the Congress supported the request and approved funding for the two CVNs in late December 1982.

The Navy's business plan for awarding the construction contract for these two CVNs was developed in late 1981 and, in order to attain earliest possible delivery, was predicated upon award of the contract as soon as possible after funds were available.

As a result the Navy was prepared to act quickly—the two ship construction contract for CVN 72 and CVN 73 was awarded to Newport News Shipbuilding on 27 December 1982. The obligated amount of money for contract award was $3.143 billion. In addition to the basic construction obligation, escalation funds (part of the original budget approved by Congress) in excess of $1.4 billion were committed to cover the projected inflation impact over the contract's nine year life. Under this $3.143 billion two ship contract, Newport News Shipbuilding has, as of mid-March 1983, subcontracted with more than 600 vendors in 32 of the 42 states where orders will be placed for more than $550 million worth of Contractor Furnished Equipment (CFE). This includes over 12,000 tons of steel of which several thousand have already been received and are in various stages of fabrication and assembly. Major items of CFE under subcontract include main turbines and gears, weapons elevators and aircraft hoisting equipment, switchboards and main condensors.

Government Furnished Equipment (GFE) is purchased by the Navy under contracts separate from the shipbuilding contract. These direct Government contracts with major suppliers of material and components result in the delivery of components that will then be provided to the shipbuilder. Through mid-March 1983 more than $1.4 billion in GFE contracts have been awarded to more than 80 contractors and subcontractors. Of this amount $960 million has been awarded to two major prime nuclear component contractors (General Electric and Westinghouse) and $440 million has been obligated under an Economy Act Order to the Department of Energy.

There will be no significant additional obligations made under the shipbuilding contract during the next twelve months since the contract is fully funded in the amount of $3.143 billion. But the shipbuilder will commit funds to subcontractors beyond the $550 million already subcontracted. The shipbuilder middle of 1983 but there is no time related estimated for these subcontracts at this time.

Over the next twelve months the Navy estimates that $400 million will be obligated for GFE in addition to the $1.4 billion already obligated.

In summary, more than $4.5 billion of the approximately $7 billion authorized and appropriated for the CVN 72/CVN 73 program has been contractually obligated as of March 1983. These contractual commitments and liabilities involve hundreds of companies across the Nation.

As it does with any shipbuilding contract, the Navy entered into the CVN 72/CVN 73 contract with the aim of obtaining these ships at or below the contract target price and on or ahead of the contract delivery schedule. The contract contains no special provisions for cancellation of either of the carriers. It does include the standard Defense Acquisition Regulation (DAR) provision providing for termination for convenience of the Government, if it is in the best interest of the Government to do so.

The cost to cancel one of these carriers is impossible to determine. As evidenced by the hundreds of contracts and subcontracts already awarded under the program, the ripple effect of cancellation in terms of material commitments, employment, capital investment and opportunity costs would be felt by companies in almost every state in the nation.

The impact and contingent liability from cancelling one of the CVNs under contract would be substantial. Two ship contracts would have to be renegotiated and reformed into a single CVN contract with resultant sunk costs related to the canceled ship and most certainly a higher price and later delivery for the remaining ship. Compounding the problem of trying to estimate cancellation costs is the fact that the order of magnitude of all of these costs is directly related to the timing of the cancellation decision. Even if the decision was made now, the cost to terminate would run in the hundreds of millions of dollars and result in years of claim and counter-claim litigation, "poisioning the well" with regard to future business relationships between the Navy and an important shipyard and component vendors, as claims and counter-claims grind on endlessly through the courts for the next decade.

A summary of the most serious effects that cancellation would have falls into the following key cases:

Delay in achieving a 15 carrier battle group Navy.—Loss of early delivery of remaining CVNs. CVN 72 could be delayed at least one year if CVN 73 was canceled. In addition, excellent progrss on *Theodore Roosevelt* (CVN 71) will be negated by the expected stretch-out of CVN 71 work for phasing in with just one additional carrier, leading to a 12 to 14 month delay of CVN 71 delivery and loss of projected savings due to that early delivery.

Reduced non-recurring engineering, planning and grouping costs;

Economics of scale in material procurement;

Reduced production gaps and improved productivity achieved through construction continuity; and

Reduced escalation resulting from earlier delivery.

Potential higher costs of other Navy work.—Cancellation of the two CVNs would potentially place substantial additional financial burden on remaining work at Newport News Shipbuilding other than CVNs.

Adverse impact on the maritime industrial base nationwide and on Navy/industry relationships.—Cancellation would have a catastrophic effect on Navy business relations with its largest, most diversified shipbuilder and with major vendors. Just as important, cancellation would be taken by the business community at-large and the shipbuilding industry, in particular, as a lack of resolve by the Government in achieving a 600 ship Navy and in fostering the stability necessary for efficient program execution. This also would result in a serious deterioration of the ship construction and repair industrial base and seriously impact economic recovery in currently depressed industries. The impact on contingent liabilities would be substantial.

The Navy needs these aircraft carriers to regain and maintain maritime superiority. The requirement has not changed; it has not diminished. If anything, the need has increased in view of our understanding today of the threat to our Nation's security. The Navy did not award the construction contract for CVN 72 and CVN 73 in anticipation of cancelling the contract at some future time. On the contrary, all planning for the award was predicted upon executing the program as expeditiously and as businesslike as possible. As a result, the program is well ahead of where it would have been had it been executed on a more traditional basis. This has compounded the complexity and the multiplicity of factors what would eventually dictate the total cost resulting from a cancellation. Total cost would have to include not only the direct cost of the cancelled ship plus the increased cost of the remaining one, but also the other costs associated with the adverse impact on employment, the deterioration of the Government-private sector business relationships, the years of litigation that potentially would ensue, and certainly the significant step backward cancellation would mean to the Navy's overall shipbuilding program. While it is impracticable to estimate all of these costs, it is reasonable to suggest that the total impact would approach the contract cost of the second of the two carriers in this unique two CVN contract.

Senator **BINGAMAN**. Do you think it would cost us more to cancel them than to buy them?

Secretary **LEHMAN**. I believe that is correct.

Senator **Bingaman**. It sounds like those were not very favorable contracts. It sounds like they limit our options somewhat.

Secretary **Lehman**. That is what you have to pay for cost savings, sir.

TRIDENT D-5

Senator **Bingaman**. Let me ask about the D-5, the Trident D-5. I understand that it is your position that this will have the same accuracy and range as the MX and that it can be produced in larger quantities than it is currently scheduled to be produced in after 1989.

Could a land-based version of the D-5 be developed?

Secretary **Lehman**. The short answer is yes, but the benefits of commonality fade to much less than one would think at first blush because the sea-borne environment drives certain costs into the way you build a sea-based missile that are not necessary in a land-based missile. There are adaptions to the land environment that you need to make so that you lose a lot of the cost-effectiveness benefits, but it certainly can be done.

As to range, the MX, as I understand the parameters, will have longer range than the D-5, but the accuracy is essentially the same.

Senator **Bingaman**. What is the comparison in cost between the D-5 and the MX per unit?

Secretary **Lehman**. I would have to provide that for the record.

[The information follows:]

Comparison of D-5 and MX costs is particularly difficult because of the many differences such as program size, IOC, sunk costs, survivability, alert rates, utilization of Trident SSBNs and bases to support C-4 before D-5 is deployed, and many other factors. The comparison has been undertaken frequently, using various combinations of assumptions in an effort to compare the costs equitably. The comparisons show D-5's cost per warhead falls between 45 percent and 90 percent of the MX's cost per warhead, over the range of reasonable assumptions.

Senator **Bingaman**. Would you have any thoughts as to whether or not a land-based D-5 would have comparable military capability to the proposed MX?

Secretary **Lehman**. My guess would be that you would probably want a little more boost to your land-based version of the D-5 than you need in the sea-based environment because you are firing generally closer to your target area.

NAVY LEASING PLANS

Senator **Bingaman**. Let me follow up on Senator Cohen's question on leasing. I gather you said that you were able to go ahead with 55 ships instead of the original 5?

Secretary **Lehman**. We had 55 bids instead of the expected 5 bids.

Senator **Bingaman**. What is the extent of the Navy's leasing plans in the next 3 years?

Secretary **Lehman**. This pretty much uses up the industrial funding that we are required to maintain in the Navy industrial fund to back cancellation liabilities. We have been leasing ships for over 50 years. This is really not a new approach. It is just that this one time package has been given a little more attention than most of them. We lease quite a few point-to-point ships and so forth today. Bascially we have nothing of the scope and scale of the TAKX program to lease in the future, but we intend to review the point contract that we had in the past.

Senator **Bingaman**. What is your view on the appropriateness of congressional oversight of leasing to the extent that it is something that the Navy and other branches of the military are going to continue doing.

Do you think it is something that we need to change procedures for so that the Congress can have a better oversight function?

Secretary **Lehman**. No; I don't think so because there was considerable oversight and a great deal of discussion with this committee and the other committees of oversight for the last 2 years on this. In fact, it really came out of an initiative we were recommending. When the ships were dropped out of the appropriation bill in 1981 the committee directed us to examine leasing. That is really what got the ball rolling. So we have been through four congressional committees and two formal hearings in the past 2 years along with oversight by the GAO and the Appropriations Committee's S&I staff. It has been thoroughly overseen. I think we ought to continue that. Leasing is an important business practice that Congress ought to keep an eye on.

Senator **Bingaman**. Thank you, Mr. Secretary.

Thank you, Mr. Chairman.

Chairman **Tower**. Senator Quayle?

Senator **Quayle**. Thank you very much, Mr. Chairman.

General Barrow, I would also like to join in the chorus paying compliments to you. I think your candor and thoughts are special and you will be missed. Thank you for the very valuable contributions you made, not only to the Corps but to the Nation.

Chairman **Tower**. I just want to say I have never heard so many nice things said about a guy since Sam Rayburn's funeral. [Laughter.]

BARRING U.S. SHIPS IN HAIFA

Senator **Quayle**. Admiral Watkins, in your response to Senator Cohen about ships going into Haifa, did I understand you to say you were not aware of any kind of an order that would preclude the ships going into Haifa? Is that correct?

Admiral **Watkins**. I am not aware of an order that would preclude the ships from going in. In fact, it is my understanding that we have had store ships recently, not too recently, visit Haifa. I am not aware because that is not normally something within either my personal purview as Chief of Naval Operations or it would not necessarily come to us in the Joint Chiefs of Staff unless it were an actual national policy.

My feeling is that this should better be addressed by the unified commander in the field because I know of no national policy that has been set.

Senator **Quayle**. Would you be surprised if there was an order in effect barring ships from going into Haifa? Would you be surprised?

Admiral WATKINS. I would be surprised if there were an order or national policy to deny ships from entering Haifa.

Senator QUAYLE. Would you be surprised if there was an order precluding flag officers from going into Haifa which in effect would be precluding ships from going into Haifa?

Admiral WATKINS. I would be surprised. I don't know of any policy.

Senator QUAYLE. You don't know of any policy and you would be very surprised.

Admiral WATKINS. I know General Gabriel visited Israel not too many months ago. I know he is well aware of some of the lessons learned from personal contact, that sort of thing. We still have a working relationship. There has been no termination of our military relationship. It is ongoing. So, I would be surprised if there were such a policy.

Senator QUAYLE. I wonder if you might look into this and give us an assessment of what the current policy is as far as flag officers and our ships and so forth visting Haifa. I am under a different impression.

I just came from Israel and also from Beirut. I would be interested if you could give us an understanding and ask the right people what our policy is right now.

Admiral WATKINS. I will do that for the record.

Chairman TOWER. I really think that question should be addressed to the Secretary of Defense. That would not be a policy made by the JCS, for example.

Senator QUAYLE. In response to his question, he said he would be surprised if any kind of policy was in effect that would get into this area. I think that we might find that there are some policies that are in effect. I think that would be relevant to Admiral Watkins. He certainly would be interested in those kinds of policies and how it is going to affect the Navy.

We can ask the Secretary of Defense if that would be the chairman's desire to direct that to him. I would like to get an answer and clarification for that.

Admiral WATKINS. Certainly I will have to work it through the Office of the Secretary of Defense.

[The information follows:]

As a result of Israel applying its law and administration to the Golan Heights in December 1981, the United states decided at that time that it would not be able to proceed with the implementation of the Memorandum of Understanding (MOU) on Strategic Cooperation that had been established between the United States and Israel. It was also decided that in such a case as this, when Israel takes actions that are sharply in conflict with U.S. regional goals, we did not wish to continue "business as usual" by allowing highly visible ship or flag rank visits to continue. Therefore, the Secretary of State, with Department of Defense concurrence, issued a message directing that all ship visits and flag rank travel to Israel should not proceed except as specifically authorized by State and DOD. Since that policy was initiated, numerous visits of both types have taken place, but only after State and DOD review.

MARINES IN BEIRUT

Senator QUAYLE. General Barrow, when I was in Beirut and talked to a number of marines, morale was seemingly good. One reason was that they were on their way out and new recruits were coming in. I think they have done a exemplary job and seem to be fitting very well, and certainly it is refreshing to see the American presence being accepted by the people of Beirut.

Since that time I notice we are now patrolling East Beirut. One of the problems that came up when I was there in discussions was on communications, communications on a military-to-military basis between our Marine Corps and the IDF. It is my understanding that we do have a policy in this area of not allowing military-to-military communications between our Marine Corps and the IDF.

It that still the policy?

General **Barrow**. Rather than give you a yes or a no answer, I think the policy as I understand it is a very correct one. There are four nations, in the multinational forces, Italian, French, U.S Marines and very recently a contingent of British.

There is no single overall commander. A multinational coordinating committee exists which represents and has membership from the United States, Italy, Great Britain, and France. The committee meets regularly with the Lebanese. The Lebanese, in turn, maintain liaison with the Israelis, Syrians, and PLO. It is through that vehicle that the components of the multinational force have their concerns represented, and that any problems receive a coordinated response. It would be most inappropriate, in my judgment, in the absence of a single commander, especially, to have each of these units working its own arrangements with the Israelis or anyone else in the country.

I can understand the root of your question because it seems illogical that two forces could be in proximity and not be talking to one another, but were do you stop? Do you have a platoon leader talking to a platoon leader and one working out his own terms of ground to be covered and liaison relationships, and so forth?

I believe the policy is correct as it is under the circumstances. It is not meant to be one in which we don't want to talk to the Israelis because they are not people to whom we want to talk. It is simply a matter of adherence to what I think is a good vehicle for doing this.

Senator **Quayle**. As a past commander said, I believe he was interested in getting a little better communications, not necessarily through political channels.

I also had the opportunity to visit with Captain Johnson. He also expressed that to me personally, this idea that they cannot have communication—I am not talking about making it complicated and not going to the unified command structure, but it seems to me if you have a problem that comes up, instead of having to go through some command-type situation, to be able to have more communication with the IDF might lessen some tensions that have gone on in the past.

I wondered if it has been corrected?

General **Barrow**. We are talking about two kinds of communication, I think the informal kind is clearly there and appropriate. I don't think there is any prohibition against marines talking to Israelis even about professional things, to say nothing about passing the time of day when they come in contact. But where there is anything of substance that will particularly affect all the multinational forces, it is done through this multinational force liaison committee. I think there has been a lot of misperception, including some people in the field, who think they are operating under prohibition of not speaking or having no contact at all. I don't know when you were there, but I think that has been lessened some in the last few weeks.

RISK TO MARINES IN BEIRUT

Senator **QUAYLE**. Could you describe for use any of the additional risks to the American marines now that we are patrolling East Beirut?

General **BARROW**. There is always risk involved in extending your operations in a country where where are more uncertainties and you don't have a physical presence in any detail, but is is not one that has us anxious. I don't think those lads that perform it are very anxious about it either. They are going about it in a professional manner and if it contributes to what this country seeks to do there, we are all for doing it.

Senator **QUAYLE**. Do you see any additional danger if we were to patrol up in the Shufe Mountains?

General **BARROW**. Not having been there, I couldn't make any forecast, but I am sure anytime you extend yourself farther and farther from the presence of a larger force you are naturally going to enter into some degree of greater danger. But that is our business, Senator. We know how to do it to minimize those kinds of dangers. None of us has any great concern about that despite what you have read about even me having concern about the presence of marines over there. I have been misrepresented. I am not biting my nails and agonizing over marines being in Beirut. I am proud of what they are doing. I know they are professionals. That is their job. That is what we should be doing in the interest of this country and world peace.

Senator **QUAYLE**. Mr. Secretary, in reponse, I believe it was to Senator Warner, you referred to I believe the congressional mandate or congressional initiative that placed responsibility upon you as Secretary of the Navy that you can't meet.

I did not really understand what you might have been referring to on that exchange. I think maybe you were talking about global responsibilities that you have.

Secretary **LEHMAN**. The theme was and is the basis for our Navy program. It is based and derived from the national commitments that are handed to us like Lebanon. These are national commitments that are embodied in a web of laws that we are sworn, of course, to uphold; laws like the NATO Treaty, article V which requires us to treat an attack on Norway as an attack on Long Island.

These are laws and we must take them seriously. There are some 40 treaty relationships. The circumstances of his question were those are the things that must be reduced first before the budget can be cut. I will submit a listing of those treaty relationships for the record.

U.S. TREATY RELATIONSHIPS

The United States does have some 40 treaty relationships. Most of these are derived from multilateral defense arrangements. These treaty relationships and parties other than the United States are:

North Atlantic Treaty (63 Stat. 2241; TIAS 1964; 4 Bevans 826): A treaty signed April 4, 1949, by which "the parties agree that an armed attack against one or more of them in Europe or North America shall be considered an attack against them all; and . . . each of them . . . will assist the . . . attacked by taking forthwith, individually and in concert with the other Parties, such action as it deems necessary including the use of armed force . . ."

Canada
Iceland
Norway
United Kingdom
Netherlands
Denmark
Belgium
Luxembourg
Portugal
France
Italy
Greece
Turkey
Federal Republic of Germany
Spain

Rio Treaty (62 Stat. 1681; TIAS 1833; 4 Bevans 559): A treaty signed September 2, 1947, which provides that an armed attack against any American State "shall be considered as an attack against all the American States and . . . each one . . . undertakes to assist in meeting the attack . . ."

Mexico
Cuba
Haiti
Dominican Republic
Honduras
Guatemala
Trinidad and Tobago
El Salvador
Nicaragua
Costa Rica
Panama
Colombia
Venezuela
Ecuador
Peru
Brazil
Bolivia
Paraguay
Chile
Argentina
Uruguay

Anzus Treaty (3 UST 3420; TIAS 2493): A treaty signed September 1, 1951, whereby each of the parties "recognizes that an armed attack in the Pacific Area on any of the Parties would be dangerous to its own peace and safety and declares that it would act to meet the common danger in accordance with its constitutional processes."

New Zealand
Australia

Philippine Treaty (3 UST 3947; TIAS 2529): A treaty signed August 30, 1951, by which the parties recognize "that an armed attack in the Pacific Area on either of the Parties would be dangerous to its own peace and safety" and each party agrees that it will act "to meet the common dangers in accordance with its constitutional processes."

Philippines

Japanese Treaty (11 UST 1758; TIAS 4511): A treaty signed January 19, 1960, whereby each party "recognizes that an armed attack against either Party in the territories under the administration of Japan would be dangerous to its own peace and safety and declares that it would act to meet the common dangers in accordance with its constitutional provisions and processes." The treaty replaced the security treaty signed September 8, 1951.

Japan

Republic of Korea (South Korea) Treaty (5 UST 2368; TIAS 3097): A treaty signed October 1, 1953, whereby each party "recognizes that an armed attack in the Pacific area on either of the Parties . . . would be dangerous to its own peace and safety" and that each Party "would act to meet the common danger in accordance with the constitutional processes."

Republic of Korea

Southeast Asia Treaty (6 UST 81; TIAS 3170): A treaty signed on September 8, 1954 whereby the parties recognize aggression by means of armed attack against one of the parties in Southeast Asia or the Southwest Pacific may endanger its own peace and safety and agrees in that event ". . . act to meet the common danger in accordance with its constitutional processes."

United Kingdom
France
New Zealand
Australia
Philippines
Thailand

(Note: On September 24, 1975, the SEATO Council voted to disband the SEATO organization, but the Treaty itself is still theoretically in force.)

Senator **Quayle**. In other words, you are saying if you are going to reduce the Navy budget, that we are probably going to have to reduce some of our commitments.

Secretary **Lehman**. First.

Senator **Quayle**. That would be the first reduction you would have to make?

Secretary **Lehman**. Absolutely.

Senator **Quayle**. Thank you, Mr. Chairman.

Chairman **Tower**. Senator Wilson?

Senator **Wilson**. Thank you, Mr. Chairman.

First, I am going to be part of the swelling chorus of praise of the Commandant.

I would say when Senator Quayle told me of the high morale in the marines in Beirut because they were going to be rotated back in 6 days, I can understand that, I have to say I think there is very high morale and very discernible and deserved pride on the part of the marines not just in Beirut, but in all the commands and I think you, sir, are directly responsible for that and I think you should enjoy an enormous amount of satisfaction in knowing that you have done a superb job.

Seldom have I heard as widespread and enthusiastic commentary on performance. It seems to be all about, not only today, but almost any occasion when I have met with former colleagues in the marines, those on active duty and those who continue to take an active interest.

So, I congratulate you.

I think my first question of you is where are you going to retire? We will be happy to place your home in California. Have you made that decision?

General **Barrow**. It is much too hazardous out there, sir.

Senator **Wilson**. It is right now. [Laughter.] We could use someone of your courage and combat experience.

Chairman **Tower**. You walked into that one.

REBUILDING A SHIPBUILDING INDUSTRY

Senator **Wilson**. I usually get smart retorts from this side. I do have a question, Mr. Secretary, with respect to the expressed interest that you have in rebuilding a shipbuilding industry which in your terms is greatly imperiled.

Could you indicate what you think the greatest problems are apart from the obvious budget considerations in addressing that and how specifically you seek to address it?

I apologize to the distinguished members of the panel. I have been in a markup session all morning and I have not had an opportunity to do more than skim your statements.

Secretary **Lehman**. The biggest problem, in the recent past, has been the disappearance of commercial business in the shipbuilding industry. There are zero commercial bottoms being built in this country except under Navy contract for lease.

As a result, the commercial repair and building base that supports much of the industry has disappeared. What remains is essentially the Navy program only and I must say the buildup of the last 2 years has occurred in the nick of time. There are at least six or more major yards that would be out of business today without the Regan increases.

The full 60 percent of the contracts, the 110 contracts that I alluded to earlier, are Reagan programs. They have come in the nick of time, but it may not be enough because what we are talking about is maintaining an industrial base of skilled labor, a base of capital equipment, waterfront area.

If you go to Boston, you will see it is no longer possible to reestablish the ship industry repair building base because there are now condominiums on all the piers. Once you allow that to disappear, you are not going to participate when the world economy improves and shipbuilding reappears. That is a very grave state of affairs.

We are doing our best in the Navy to speed up contracts and maximize the dollars like the TAKX charter, but we can't do it all. We need more help.

Senator **Wilson**. Mr. Chairman, I don't think we have the time today and I am mindful that you and I are alone here, I am mindful of the fact that these gentlemen have been at the witness table all morning.

Mr. Secretary, at some future time I would like to get into some detail with respect to the Department's policies on overhaul and ship repair. I think you have made a statement that indicates an awareness of not just the desirability, but of the essential requirement that we have on both coasts, a very vital capability in that regard. As you know, I share that for reasons that relate both to our national security and employment opportunities in my home State and neighboring States.

So, I will take the opportunity in the near future to contact you so that we can address that in some greater detail than is possible at this time.

Mr. Chairman, I have other questions, but I think perhaps it would be kinder to release the members of the panel with thanks.

Chairman **Tower**. Any additional questions you have may be submitted for the record for response in writing. I have some additional questions myself which I will submit to the panel for response in writing.

[Questions with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR STROM THURMOND

MEDIUM DEPTH MINE

Senator **Thurmond**. Mr. Secretary, last year Congress authorized and appropriated $5.5 million for development of some form of medium depth mine. I understand that the mine under development was of concern to the Navy, because of its high cost. I also understand that the Navy has indicated in hearings on the House side an intent to refuse Congressional direction in this area. Is that true?

Secretary **Lehman**. Over the past 12 years the Navy has thoroughly investigated the technical, financial, and operational feasibility of acquisition of a Medium Depth Mine (MDM). [Deleted]. The Navy is therefore initiating discussions with the Congress to determine if alternative uses of the $5.5 million to enhance Mine Warfare would be appropriate.

Senator **Thurmond**. Admiral Watkins, would you submit for the Record the Navy's 5 year plan for development and procurement of mines?

Admiral **Watkins**. The requested information is presented below:

	Fiscal years				
	1984	1985	1986	1987	1988
Quickstrike:					
R&D	$7.3	$7.3	$5.8	$5.7	$5.9
Proc	$39.7	$49.1	$51.5	$66.1	$69.5
Total (millions)	$47.0	$56.4	$57.3	$72.3	$75.4
Quantity:					
(MK 65 case)	600	559	743	743	777
(TDD 57)	1,100	1,505			
(TDD 58)	75	208	217	397	457
(TDD 70)		288	400	600	1,000
(TDD 71)				200	500
Captor:					
R&D	$15.9	$2.8	$2.9	$2.9	$2.0
Proc	$105.4	$157.6	$195.1	$197.6	
Total (millions)	$121.3	$160.4	$198.0	$200.5	$2.0
Quantity	300	475	600	493	
SLMM:					
R&D	$2.9	$3.0	$2.4	$1.5	$1.6
Proc	$21.3	$22.8	$24.2	$25.6	$27.1
Total (millions)	$24.2	$25.8	$26.6	$27.1	$28.7
Quantity	242	280	290	284	266

SEALIFT SHORTAGES

Senator **Thurmond**. General Barrow, I know that sealift is a serious concern for the Marine Corps. Do you feel that our sealift shortages are being addressed in a timely manner when compared to procurement of other ships?

General **Barrow**. The Marine Corps fully recognizes that implementation of a global maritime strategy requires balanced naval forces—both for winning the battle at sea and force projection ashore. The current shipbuilding program provides a steady increase in numbers of amphibious ships which will meet our lift objectives—the capability to transport in amphibious ships the assault echelons of a Marine Amphibious Force (MAF) and Marine Amphibious Brigade (MAB) by 1994. The projected percentage of amphibious ships in the fleet is balanced within the context of the Department of the Navy goal of a 600-ship Navy.

SOVIET SUBMARINE SPEEDS

Senator **Thurmond**. Mr. Secretary, last year the Soviets announced that they were developing a propulsion system for submarines capable of 60 knots. The Soviets currently produce submarines capable of greater speeds than ours, but ours are far more quiet. Is there a trade-off involved there or are we technologically inferior to the Soviets in submarine propulsion?

Secretary **Lehman**. The 60 knot Soviet submarine was an invention by the editor of a British naval reference book who had misread a table in an April 1980 article in the Soviet naval professional magazine, Morskoy Sbornik (Naval Digest). The Soviet article was a general discussion of speed trends in all manner of platforms, and the figure of 65 knots came from a table clearly labeled in kilometers per hour—not knots. Sixty-five kilometers per hour equals about 35 knots. Some Soviet submarines can exceed this speed—the ALFA class, for example is capable of sustained speeds in excess of 40 knots—but they are also noisy, and hence detectable. The flow noises created at such speeds also cripple the submarines' sensors, making them virtually blind (or deaf, since the sensors are acoustic). While we possess the necessary technology to build submarines capable of very high speeds, we have continued to emphasize the submarine's principal tactical advantage of stealth by devoting significant technical efforts to quieting. However, the *Los Angeles* (SSN-688) class, our current production program, is a highly successful combination of both speed and quietness, combining the advantages of both.

MEDIUM DEPTH MINE

Senator **Thurmond**. Mr. Secretary, as you know for the past 3 years Congress has supported the Navy's requirement for a Medium Depth Mine. This support included authorization and appropriation of $5.5 million last year for continued development. In House hearings this year it was indicated the Navy may refuse Congressional direction on this matter. Is that true? Assuming the Navy follows the intent and direction of Congress when will the $5.5 million be released for the Medium Depth Mine development program?

Secretary **Lehman**. Over the past 12 years the Navy has thoroughly investigated the technical, financial, and operational feasibility of acquisition of a Medium Depth Mine (MDM). [Deleted.] The Navy is therefore initiating discussions with the Congress to determine if alternative uses of the $5.5M to enhance Mine Warfare would be appropriate.

Senator **Thurmond**. Once again assuming the Navy moves out as directed by Congress, what funding would be needed in fiscal year 1984?

Secretary **Lehman**. That has not been accurately budgeted pending congressional response to the Navy alternate program.

Senator **Thurmond**. It is my understanding that the Navy's own study (Chief of Naval Operations Evaluation Board Study) in late 1981 clearly and unequivocally shows that Captor mines cannot meet this requirement or mission. Is there any evidence to the contrary?

Secretary **Lehman**. The performance capability of Captor in [deleted]. The potential of Captor to address the ASW threat in medium water depths will be assessed upon completion of these tests.

Senator **Thurmond**. The Navy has consistently given mine warfare a low priority, much lower than the Soviets for instance. I realize there is not much glamour in mines, but I believe history has shown mines are a cost effective way to meet the threat posed by the Soviet Navy. Evidence strongly suggests Congress wishes to support a Medium Depth Mine . . . why then is the Navy resisting this support?

Secretary **Lehman**. Over the past twelve years the Navy has thoroughly investigated the technical, financial, and operational feasibility of acquisition of a Medium Depth Mine (MDM). [Deleted.]

Senator **Thurmond**. What would be the unit cost and cost per barrier mile of the use of Captor for this mission as opposed to the use of the Medium Depth Mine concept?

Secretary **Lehman**. The operational missions of the production MK 60 MOD 0 and MOD 1 Captor mines and the conceptual Medium Depth Mine (MDM) are basically different, yet complementary. Captor was designed and is being produced to provide a defensive, open ocean, deep water ASW barrier. [Deleted.] Based on the following conditions:

Captor unit cost (actual) = $287k (plus GFE torpedo),
MDM unit cost estimated to be $235K,
The ratio of MDM field cost to Captor field cost would be about 1.4 to 1 [deleted].

Questions Submitted by Senator John W. Warner

DEPT. OF THE NAVY MILITARY AND CIVILIAN MANPOWER REQUESTS

Senator **Warner**. What are the active, reserve, and civilian manpower requests for fiscal year 1983 and fiscal year 1984, and what are the projected figures for those categories for fiscal year 1985-1988?

Secretary **Lehman**. The Department of the Navy (DON) request for fiscal year 1984 represents a carefully balanced program, which includes manpower for ongoing as well as new programs, as we build toward a base of 600 ships.

The combined Navy and Marine Corps active duty, civilian and reserve manpower requests for fiscal year 1983 through fiscal year 1988 are provided below.

DON MILITARY AND CIVILIAN MANPOWER REQUESTS

[End strengths]

	Fiscal year					
	1983	1984	1985	1986	1987	1988
Active	754,900	769,500	785,600	797,700	805,700	810,100
Reserve [1]	148,400	162,400	170,600	178,300	186,700	188,200
Civilian	330,698	334,260	338,505	340,535	340,731	340,233

[1] Includes Full-time Support (TARs), Training Pipeline (F), Individual Mobilization Augmentees (Category D), and SELRES (Category A).

Senator **Warner**. What would be the quantitative reduction in manpower requirements and in deployment or—in the case of deployed units—combat effectiveness, permitted by a reduction in the readiness goals (C-ratings or ALOs) for a representative group of units?

Secretary **Lehman**. Accepting a reduction in personnel readiness goals (C-ratings) would unequivocally degrade the Navy's ability to perform its mission.

If personnel were reduced by ten percent across the board for a C-1 Carrier Battle Group, the resulting quantitative reduction would be 32 officers and 564 enlisted.

The same ten percent reduction of personnel from a typical C-1 carrier airwing would result in a reduction of 33 officers and 208 enlisted.

Senator **Warner**. What would be the reduction in active manpower requirements of a representative slowdown in planned unit activations? Show the planned activation schedule by quarter and compare that with the stretchout.

Secretary **Lehman**. Fiscal year 1984 continues significant expansion of the nation's naval forces. Substantial growth is programmed in the numbers of ships, aircraft, and weapons systems, bringing increased requirements for manpower. Throughout the remainder of the decade the Navy must expand its manpower resources in order to support and operate the growing Navy. Accordingly, it is imperative that Navy procurement and programming proceed on schedule if we are to achieve the goal of a 600-ship 15-carrier Navy before the end of the decade.

Initiation and implementation of a slowdown would severely jeopardize the achievement of the naval recovery program and negate recent successes in ship and aircraft construction, brought about by the acquisition improvement program. In addition to the loss of these management initiatives, the Navy would, in all likelihood, be subject to substantial additional costs due to breach of contract penalties, contractor claims, and miscellaneous rental fees Additional costs would be incurred in maintaining those newly delivered ships in a storage status until crews are available.

As shown below, the Navy is programed to take delivery of 52 ships and six squadrons between the last half of fiscal year 1983 and fiscal year 1985. Since the majority of the ships being delivered in fiscal year 1983 already have their manpower on board, a delay in activation would not affect manpower cost savings. If a unit activation slowdown plan were implemented for fiscal year 1984 and beyond, manpower programed for the ships and squadrons affected could be delayed and this would defer, for the most part, the associated manpower costs into future years. However, postponing arrival of, for example, a cruiser and its associated crew complement from one fiscal year to the next would not yield any tangible manpower cost savings in the long run.

The Navy planned activation schedule by quarter is depicted as follows:

NAVY PLANNED ACTIVATION SCHEDULE BY QUARTER

Type hull	Ship name	Estimated delivery date
Last two quarters fiscal year 1983:		
FFG 39	Doyle	April 29, 1983.
SSN 714	Norfolk	April 30, 1983.
FFG 33	Jarrett	May 27, 1983.
SSN 706	Albuquerque	May 28, 1983.
FFG 37	Crommelin	June 10, 1983.
SSBN 728	Florida	June 30, 1983.
AD 44	Shenandoah	July 19, 1983.
FFG 42	Klakring	Aug. 5, 1983.

NAVY PLANNED ACTIVATION SCHEDULE BY QUARTER—Continued

Type hull	Ship name	Estimated delivery date
FFG 38	Curts	Sept. 2, 1983.[1]
SSN 715	Buffalo	Sept. 17, 1983.
FFG 40	Halyburton	Sept. 30, 1983.
Fiscal year 1984		
SSN 707	Portsmouth	Oct. 29, 1983.
FFG 41	McClusky	Nov. 4, 1983.
FFG 45	Dewert	Nov. 11, 1983.
TAGOS 1	Stalwart	Dec. 18, 1983.
ARS 50	Unnamed	Jan. 14, 1984.
FFG 43	Thach	Feb. 3, 1984.
SSN 716	Salt Lake City	Feb. 18, 1984.
FFG 47	Nicholas	Feb. 24, 1984.
SSBN 729	Georgia	Feb. 29, 1984.
TAGOS 2	Contender	March 3, 1984.
SSN 708	Minneapolis/St. Paul	March 17, 1984.
FFG 46	Rentz	May 18, 1984.
TAGOS 3	Vindicator	May 19, 1984.
FFG 49	Robert G. Bradley	June 22, 1984.
SSN 717	Unnamed	June 30, 1984.
CG 48	Yorktown	July 27, 1984.
TAGOS 4	Triumph	Aug. 9, 1984.
FFG 48	Vandergrift	Aug. 31, 1984.
SSN 709	Unnamed	Sept. 8, 1984.
Aircraft squadrons (exact date of commissioning in fiscal year 1984 unknown):		
VA 55		
VF 131		
VF 132		
VAW 127		
VAQ 139		
HC 5 (with Det)		
Fiscal year 1985		
TAGOS 5	Assurance	Oct. 21, 1984.
SSBN 730	Rhode Island	Oct. 31, 1984.
SSN 718	Unnamed	Oct. 31, 1984.
FFG 50	Taylor	Nov. 2, 1984.
LSD 41	Whidbey Island	Nov. 26, 1984.
ARS 50	Unnamed	Nov. 28, 1984.
TAGOS 6	Persistent	Jan. 13, 1985.
SSN 710	Unnamed	Feb. 16, 1985.
FFG 53	Unnamed	March 15, 1985.
TAGOS 7	Indomitable	March 29, 1985.
FFG 52	Carr	May 1, 1985.
FFG 51	Unnamed	May 3, 1985.
CV 59	Forrestal	May 20, 1985.
TAGOS 8	Pervail	June 11, 1985.
SSN 719	Unnamed	June 29, 1985.
SSBN 731	Alabama	June 30, 1985.
FFG 55	Unnamed	July 12, 1985.
CG 49	Unnamed	July 22, 1985.
TAGOS 9	Unnamed	Aug. 25, 1985.
FFG 54	Unnamed	Sept. 6, 1985.
LSD 42	Unnamed	Sept. 30, 1985.
MCM 1	Avenger	Sept. 30, 1985.

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[1] FFG 38, USS Curts, was previously scheduled for delivery in fiscal year 1984 (a net increase of 20 ships in fiscal year 1984). Subsequent to submission of the Navy's fiscal year 1984 budget, the delivery date for FFG 38 changed to fiscal year 1983.

If the planned activities for Marine Corps were delayed one year, there would be a savings of 2,546 spaces in fiscal year 1984. Planned unit activities and representative showdowns are shown in the attached charts.

Senator WARNER. What would be the reduction in active manpower requirements and force deployability of a representative transfer of missions (i.e., force structure) from the planned active force to the Reserve? Show how many active personnel reductions would be made possible by the active structure reductions (both combat and support) and how many personnel (if any) would be added back in for the reserve units. Also, show the changes in other manpower requirements (e.g., part-time reservists and full-time technicians).

Secretary LEHMAN. Any reduction in the Navy's deployed force structure would be dependent upon decisions to reduce our overseas commitments. Such decisions can only be made by the Congress and National Command Authority. Therefore, I am unable to provide you with specific representative cases. However, this concept, if adopted, has several considerations which require extensive study before a decision is made to shift additional missions from our active forces to the Naval Reserve.

First, it must be assured that there will be the willingness to exercise the appropriate recall authority if the forces shifted to the Reserve are needed in a future contingency situation.

Second, we must consider the ability of the Naval Reserves to absorb new missions at times when it is manned only at 80 percent of current Selected Reserve requirements. In addition, the Naval Reserve is also experiencing personnel shortages in certain skill areas which will make adoption of some additional missions particularly difficult. The reserve program is currently in a state of significant expansion and Navy continues to look for appropriate revision, which the reserve component can be further utilized without effecting readiness.

The balance of force structure within the Navy, including active and Reserve, is under constant review. I can assure you that we are looking at ways to accelerate our Selected Reserve growth and will continue to examine all mission areas to identify possibilities for additional expansions of the Naval Reserve.

Senator WARNER. What would be the impact on military capability of a representative combination of the alternative approaches cited in my second, third and fourth questions that would produce an active manpower reduction of 5 percent of the proposed end strength for fiscal year 1984? What would be the effect of such a reduction on reserve, technician, and civilian strength requirements?

Secretary LEHMAN. A five percent reduction in fiscal year 1984 end strength would have a serious and long-lasting impact on many capabilities. The reduction would, by necessity, be taken from active accessions rather than by separating experienced personnel. A five percent Navy enlisted reduction (24,874) would result in a twenty-six percent cut to the active duty accession plan. These accession reductions made now would proportionately affect success toward petty officer growth in the subsequent years and would negate the growth toward the revitalized Navy. Immediate impacts of a reduction of this magnitude are (1) the degradation of recruitting, examining, and training command resources which are needed in time of mobilization and which would be difficult to replace in out years and (2) the almost complete abolition of General Detail (GENDET) personnel in near terms, resulting in serious manpower shortages in the non-skilled personnel pool. On the Navy officer side, the impact of the five percent reduction (3,510) would result in a 44 percent reduction to the active duty accession plan, and would necessitate elimination of Officer Candidate School (exclusive of Nuclear Power Officer Candidates), Air Officer Candidate School, recalls, and Chaplain, Judge Advocate General, and Construction Engineer Corps Procurement Programs. A reduction would also be made to Limited Duty Officer/Warrent Officer commissionings. A 5 percent cut in Marine Corps end-strength represents the loss of 9,865 personnel, which is equivalent to a Marine Amphibious Brigade.

The size of this proposed reduction (38,249) would make it virtually impossible to man the 13th air wing. In addition, over ten new frigates (FFG-7 class) could not be manned fully. Operational readiness of C-1 to C-2 for eighty percent of the ships and seventy percent of the aviation squadrons would decline to most units being in a C-3 "marginally combat ready" status which would limit both operations and endurance. The entire Marine Corps, is currently manned at 92 percent of wartime requirements. Within the Marine Corps, the FMF is currently manned at 89 percent of its wartime requirement. If the Marine Corps is forced to accept a 5 percent cut to the proposed fiscal year 1984 end-strength, the FMF would be manned at 79 percent to 80 percent. Our ability to respond to critical situations, such as the Gulf of Sidra and Lebanon crises, would be severely affected. The increased sea duty time, personnel shortages to handle essential tasks, and "cross-decking" from other units required to perform the mission would almost eliminate the manpower improvements attained in previous years. The resulting increased workload, falling on fewer personnel, would most probably result in retention falling back to fiscal year 1979 and fiscal year 1980 levels, further degrading readiness. The loss of experienced officers and enlisted personnel would have a serious impact upon our ability to operate the increasingly complex systems already in the delivery schedule for fiscal year 1984 and beyond.

The Navy has taken great strides to maximize the effective use of our Reserve forces—increasing numbers, and ensuring the availability of state-of-the-art equipment and training. Due to the fact that our forces are forward-deployed, world-wide, there are instances in which mission capability precludes equal utilization of the Reserves, however, to the maximum extent possible Reserve forces are and will continue to be given every opportunity to grow and train alongside their active duty counterparts.

Senator Warner. What would be the impact on military capability of a representative combination of the alternative approaches cited in my second, third and fourth questions that would produce an active manpower reduction of 3.2 percent of the proposed end strength for fiscal year 1983 with no growth in fiscal year 1984? What would the effect of such a reduction on reserve, technician, and civilian strength requirements?

Secretary Lehman. A 3.2 percent reduction in fiscal year 1983 and no increase in fiscal year 1984 would result in immediate and long-lasting degradation of the Navy's military capabilities.

From the implementation point of view, it would be virtually impossible to take a 3.2 percent reduction (24,012) in fiscal year 1983. Present plans are well underway and only 986 fiscal year 1983 Navy officer accessions could now be eliminated by stopping accessions. A further 1,199 would have to be involuntarily released, with serious impact on morale and discipline. 15,600 enlisted accessions, including 6,000 prior service males would also be eliminated. Needless to say, eliminating 17,785 Navy and 6,227 Marine Corps personnel from planned programs, midway through the fiscal year, would cause considerable problems relating to rescheduling of unit activations, breach of enlistment contracts, and the creation of a negative image for Navy and Marine Corps recruiting in the future.

If the shore activities were stripped of military personnel in order to man the new and existing ships, upward of 15,000 civilian positions would be needed to perform those functions. Sea-Shore rotation would be severely limited and retention rates would drop accordingly.

Senator Warner. What would be the net savings in fiscal year 1984 outlays of the examples in my fifth and sixth questions.

Secretary Lehman. The fiscal year 1984 outlay savings for the Military Personnel, Navy (MPN) appropriation based on a 5 percent reduction in the proposed fiscal year 1984 end strength would be $174.9 million.

The outlay savings for the Military Personnel, Navy (MPN) appropriation for the 3.2 percent reduction in the proposed fiscal year 1983 end strength with no growth in the fiscal year 1984 end strength would be $276.4 million. (These amounts are not additive.) A 5 percent reduction in active duty end strength in the Marine Corps would result in a $61.8 million outlay savings in MPMC dollars. End strength would diminish by 9,865 personnel.

Senator Warner. What actions would the Navy and Marine Corps take in fiscal year 1983 if the fiscal year 1984 manpower request were reduced by 5 percent?

Secretary Lehman. There is very little the Department of the Navy is capable of doing, this far into fiscal year 1983, to accommodate a reduction in fiscal year 1984 end-strength, other than reducing accessions and end-strength across fiscal year 1983 and 1984. The Marine Corps would hold off the activation, reactivation and reorganization of those units that will require additional personnel and carry out the planned reorganization of those units that produce a reduction in personnel. The major impact would be felt in Combat Service Support units and those firepower and mobility improvements begun in fiscal year 1982. The delay in activation would have a long term effect on overall readiness and combat capability.

Senator Warner. What would you expect the impact to be on the following areas of a reduction such as that described in my fifth and sixth questions?

Secretary Lehman. a. Base structure. Maintaining the highest fleet readiness for as long as possible is the Navy's first priority. Therefore, active duty accessions and training, and manning of support programs would necessarily be cut first. However, in the face of our need to access and retain increased numbers of Selected Reservists, the size of the reduction which could be made is not yet quantifiable.

b. Enlisted and officer personnel management and morale. Reductions to the fiscal year 1984 manpower request will lead to increased personnel losses and personnel problems. Increased workloads will result from the decreased availability of personnel. A coincidental cut in the numbers of people attending formal and technical training would necessitate increased dependence on fleet senior petty officers to provide on-the-job training and would further increase fleet workload. The Fleet Marine Force would be seriously affected because of changes in the personnel flow pattern. FMF units returning from commitments would not have normal losses replaced until they began preparation for the next commitment.

c. Rotation base. Although deployed and deployable units would be, as far as possible, protected from direct manpower reductions, there would be fewer personnel in the shore establishment to relieve their counterparts at sea. Ships and aircraft squadron requirements must be maintained to keep the units at acceptable force readiness levels. Marine infantry battalions reduced rotation cycle will cause units to be in a near-constant state of deployment. The workload at sea will not lessen, but the overall available manpower to do it will, putting greater stress on the deployed manpower. Without question, this will, in turn, have a negative effect on retention, creating a spiral of greater demand for accessions, training, and retention-enhancing devices.

d. Force readiness. Any reduction proposed would have a negative impact in both the short-term and the long-term. Reserve personnel (with the exception of deployable Naval reserve P-3 squadrons) are not available in peacetime to augment units or to carry out missions assigned to our deployable and forward-deployed forces. Intensive Marine battalion level training could only be conducted at stations of initial assignment after the declaration of mobilization. This required training would delay deployment of units supporting CINC OPLANS. Our peacetime missions demand adequate numbers of full-time personnel for maintenance and immediate contingency operations. In the long-term, any plan of action which reduces our accession base now would undermine our ability to meet our career force requirements in the late 1980's.

e. Ability to meet national commitments, especially the D-day commitment to NATO. The proposed 5 percent and 3.2 percent manpower reductions to fiscal year 1984 and fiscal year 1983 end strengths respectively should be expected to result in serious degradation to the Navy's ability to perform its missions. It seems clear to me that ships provided to NATO would be in reduced-manned, less combat ready status. Those ships reporting to NATO would have degraded readiness postures because their crews would include recent arrivals cross-decked from other ships or shore activities or from SELRES. All new personnel would not have trained recently as a unit.

f. Political-military perceptions among allies and potential adversaries. Active manpower reductions would probably be perceived by allies as symbols of decreased national will to support allied commitments and as a departure from our tradition of military cooperation within the alliance. Our allies might follow the US lead and also cut active manpower in their military services and thereby further weaken overall coalition readiness. Potential adversaries would surely welcome the proposed active manpower reductions and the resulting degradations in combat readiness.

Senator **Warner**. What is the current percentage of wartime authorized manning of the Navy and Marine Corps? Separate by rank.

Secretary **Lehman**. A summary of the wartime requirements, current manning, and our current percentage of wartime manning, follows, first for Navy:

CURRENT PERCENTAGE OF WARTIME AUTHORIZED MANNING OF THE NAVY—M DAY TO M + 180 DAYS—FISCAL YEAR 1984

	Wartime requirement (NAMMOS)	Current manning [1]	Percent
Flag	553	525	95
06	5,435	5,774	106
05	13,818	14,777	107
04	26,105	29,331	112
03	40,586	36,891	91
02	19,341	16,067	83
01	12,913	12,621	98
WO	4,963	5,061	102
Subtotal	123,717	121,047	97.8
E9	5,652	5,843	103
E8	13,084	13,348	102

CURRENT PERCENTAGE OF WARTIME AUTHORIZED MANNING OF THE NAVY—M DAY TO M+180 DAYS—FISCAL YEAR 1984—Continued

	Wartime requirement (NAMMOS)	Current manning [1]	Percent
E7	48,107	48,651	101
E6	109,689	111,787	102
E5	144,739	148,092	102
E4	161,735	154,522	96
E1–E3	271,564	261,876	96
Subtotal	754,570	744,119	98.6
Total	878,287	865,166	98.5

[1] Our current manning combines billets authorized in the active force, Selected Reserve authorizations and the requirements for additional mobilization assets (Individual Ready Reserve, Fleet Reserve, and Retireds) through the first 180 days of mobilization.

FOR THE MARINE CORPS

Pay Grade	WASR	Current end strength	End strength/WASR
Flag Officers	117	65	55.6
0–6	865	583	67.4
0–5	2,110	1,635	77.5
0–4	4,268	3,040	71.2
0–3	6,496	5,686	87.5
0–1, 0–2	6,173	7,337	118.9
WO	1,843	1,411	76.6
E–9	1,567	1,266	80.8
E–8	4,333	3,739	86.3
E–7	10,879	9,185	84.4
E–6	18,408	15,521	84.3
E–5	30,139	25,075	83.2
E–4	42,474	31,840	75.0
E–1 to E–3	91,355	90,917	99.5
Total officers	20,029	18,346	91.6
Total warrant officers	1,843	1,411	76.6
Total enlisted	199,155	177,543	89.1
Total	221,027	197,300	89.3

PLANNED UNIT ACTIVATIONS

	1st Quarter FY 84	1st Quarter FY 85	1st Quarter FY 86	1st Quarter FY 87	1st Quarter FY 88
	1-Light Armored Vehicle Bn(-) (786 spaces) 2-TOW Platoons (162 spaces) 1-155 (Self Propelled) Battery (103 spaces) 2-"D" Batteries LAAM Bn (260 spaces) 1-Marine Air Control Squadron (60 spaces) 3-Water Supply Companies (468 spaces) 1-General Support Artillery Bn(TOWED) (518 spaces) 1-Medium HeloSqdn (189 spaces)	1-LAV Bn (1000 spaces) 2-TOW Platoon (162 spaces) 1-Target Acquisition Battery (162 spaces) 1-155(SP) Battery (103 spaces) 1-Medium Helo Squadron (189 spaces) 1-Heavy Helo Squadron (327 spaces)	1-Light Amored Vehicle Bn(-) (786 spaces) 1-LAV Co(+) (250 spaces) 1-155(SP) Battery (103 spaces) 1-General Support Artillery Bn(TOWED) (518 spaces) 3-TOW Platoons (243 spaces)	1-Target Acquisition Battery (162 spaces)	1-Target Acquisition Battery (162 spaces) 1-General Support Artillery Bn (TOWED) (518 spaces) 1-155(SP) Battery (103 spaces) 1-Helo Trng Sqdn (288 spaces)
TOTAL Planned	(2546 spaces)	(1943 spaces)	(1900 spaces)	(162 spaces)	(1071 spaces)
TOTAL SLOWDOWN	(0 spaces)	(2546 spaces)	(1000 spaces)	(1729 spaces)	(1276 spaces)
COMPARISON	(2546 spaces) (SAVED)	(603 spaces) (Increased)	(900 spaces) (SAVED)	(1567 spaces) (Increased)	(205 spaces) (Increased)

REPRESENTATIVE SLOWDOWN

	1st Quarter FY 84	1st Quarter FY 85	1st Quarter FY 86	1st Quarter FY 87	1st Quarter FY 88
		1-Light Armored Vehicle Bn(-) (786 spaces) 2-TOW Platoons (162 spaces) 1-155 (Self Propelled) Battery (103 spaces) 2-"D" Batteries LAAM Bn (260 spaces) 1-Marine Air Control Squadron (60 spaces) 3-Water Supply Companies (468 spaces) 1-General Support Artillery Bn(TOWED) (518 spaces) 1-Medium HeloSqdn (189 spaces)	1-LAV Bn (1000 spaces)	1-Light Amored Vehicle Bn(-) (786 spaces) 2-TOW Platoon (162 spaces) 1-Target Acquisition Batt.(162 spaces) 1-155(SP) Battery (103 spaces) 1-Medium Helo Squadron (189 spaces) 1-Heavy Helo Squadron (327 spaces)	1-Target Acquisition Battery (162 spaces) 1-LAV Co(+) (250 spaces) 1-155 SP Battery (103 spaces) 1-General Support Artillery Bn.(Tow) (518 spaces) 3-TOW Platoons (243 spaces)
TOTAL	(0 spaces)	(2546 spaces)	(1000 spaces)	(1729 spaces)	(1276 spaces)

OUTER AIR BATTLE SYSTEMS UPGRADE

Senator WARNER. Last year, the Congress authorized and appropriated funds for two nuclear aircraft carriers. I shared in the leadership of this effort as I am convinced that we must meet the Soviet challenge at sea through power projection and sea control. However, Mr. Secretary, I am concerned about the increasing threat, particularly the Backfire bomber and its long-range standoff missiles. I know you have confidence in the current ability of your tactical forces at sea, and I share this confidence. However, I am worried about the ability of our tactical forces at sea by the end of the decade, considering the progress of the Soviet bomber and missile threat.

Some 12 years ago, while I was in the Navy Secretariat, the F-14 aircraft was approved for production. It was the plan of the Navy, the Defense Department, and the Congress to produce only a few F-14As (37, I recall) before a new engine would be installed, and by mid-70's an improved avionics was to come on line. These steps, we believed, would give us the finest fighter plane in the world for the remainder of the century. This plan has not materialized.

In addition to the F-14, I am also concerned about the other air weapon systems necessary for success in the outer air battle—early warning, electronics warfare, and in-flight refueling capabilities.

Do you have a plan how to begin an upgrade of these systems? What can you tell the committee today about this effort?

Secretary LEHMAN. The F-14 will require major systems upgrades to meet the threat through the 2000-2005. These changes may include improved engines, avionics, and radar. The Naval Air Systems Command has been directed to examine the type of management approach needed to structure future production improvements as block upgrades. A retrofit plan, to selectively incorporate required improvements in older aircraft, will also be developed.

In the Early Warning area, the Navy is planning to upgrade the E-2C radar by providing detection capability at ranges equivalent to AWACS (Extended range improvement, [deleted] and increasing its capabilities in the face of sophisticated jamming (TRAC A antenna, [deleted]. The prototype over-the-horizon radar (OTH-R) will undergo Navy test and evaluation in [deleted] Joint operations with the USAF AWACS are continuing and experiencing with allied early warning assets is growing.

In electronic warfare, the ever-increasing sophistication of anti-ship missiles has resulted in a shift in direction from electronic point defense to a concept called [deleted].

The Navy is improving its in-flight refueling capability in several ways. Conversion of 48 A-6E aircraft to KA-6D is proceeding the first of which will be complete in 1985. Additionally, 49 existing KA-6D aircraft are undergoing service life extension refurbishment. A new, more reliable buddy store is under development, and the first of 350 units will meet IOC in 1986. In response to increasing threat capabilities, the need to station the F-14 CAP at greater distances from the CVBG has grown. New tactics have evolved, such as the Vector Logic CAP sequencing doctrine. These stationing and sequencing criteria are placing increased demand on a fixed aerial refueling capacity. Alternatives to dramatically increase this capacity are currently under study.

AEGIS VERSUS SUPERSONIC TARGET

Senator **Warner**. I would like to comment briefly on a subject of concern to this committee. My concern stems from the fact that *Ticonderoga*, the first Aegis ship, is already at sea. Aegis, a ship vital to fleet defense, has not been tested against a supersonic, low altitude, air-launched target with a range of 40–50 miles and a speed of about 2.5 Mach.

Computer testing of Aegis simply appears less than satisfactory. What is needed is open-sea testing under realistic simulated combat conditions. A test target with the characteristics I've stated can replicate the threat we face from the Russian SSN-12 and SSN-19, and especially the SSN-22. The SSN-22 at 2.5 Mach has three times the speed of the Exocet missile that resulted in such heavy damage to the British Navy in the Falklands.

Our need for the required air-launched missile target is not a new concern. In July, 1979, Senator Nunn and I jointly signed a letter to the chairman of this committee, pointing out the urgent need for this high performance air-launched missile and quoting Vice Admiral Turner's testimony that the stand-off missile was the Navy TACAIR's highest priority. We urged increased funding.

Yet today, with Aegis at sea, we don't have that missile. In 1968, the Navy initiated and, after assuming the duties of Under-Secretary of the Navy the next year, I strongly supported the development of an Integral Rocket Ramjet program for a projected need in the 1980's. By 1979, after a $50 million development program, the basic development vehicle had been successfully and repeatedly flight tested and the initial test of a weapon application had been conducted.

Today, we are in the then-prospective 1980's period, still without an air-launched 2.5 Mach low-altitude target missile; yet, the Integral Rocket Ramjet technology has been, and is, on the shelf, ready to use. I would appreciate it, Mr. Secretary, if you would give my questions appropriate attention.

Does the Navy contend that it is neither necessary nor practicable, at the earliest possible time, to test Aegis against an air-launched, low-altitude, supersonic target vehicle with a 2.5 mach speed, a range of 40–50 miles, with such tests under realistic, open-sea conditions that simulate combat situations as closely as is possible?

Secretary **Lehman**. No. The Navy plans actual tests in 1984 under conditions which simulate combat situations. However, it is difficult to say what constitutes "realistic" tests. Many tests have already been conducted under computer simulation, replicating characteristics which we believe represent the threat and combat situations.

Senator **Warner**. Why did the Navy reject the Mitre Corporation (1980) study of supersonic targets, paid for and recommended by OSDR&E, which recommended ALVRJ and AQM-37 as more effective, more readily available and less expensive than Firebolt and Firebrand? Please note that rejection of Vandal from consideration was due to its land-launch requirement and other factors which preclude threat replication.

Secretary **Lehman**. We studied the Mitre report and did, in fact, consider the issues raised although we did not accept all conclusions and recommendations. The study addressed minimum essential target needs based on validated threats, while the Navy's requirements extend to postulated threats. Despite the divergence between the study's approach and Navy program objectives, our recent target acquisition actions and plans reflect consideration of the issues raised by Mitre. For example, we terminated the Firebrand program because of affordability, performance and availability problems. Also, an improved version of the AQM-37A is being provided as a high altitude-high speed target prior to the availability of Firebolt (a more capable vehicle with greater growth potential.) In addition, we have developed a variant of the Vandal as a low altitude/high speed target (recognizing the land-launch and performance limitations identified by Mitre) until a new, fully threat-representative sea-skimmer supersonic target can be acquired competitively.

Senator **Warner**. I understand that the Navy is contemplating utilization of the Wallops Island facility because no other East coast land-launch site is available and an open-sea vessel is prohibitive. Is not the Wallops area unsituable for these type of tests because it ties them close to land operating distances with a land-launched target such as Vandal; particularly in view of the fact that the area has a high density shore habitation and an extremely high off-shore air and surface traffic?

Secretary **Lehman**. The air and surface traffic is anticipated to cause delays of test schedules but not significantly more than has been experienced at the Pacific Missile Test Center, P. Mugu, California, where the Navy has successfully conducted test operations for years. In addition, Naval Air Test Center, Patuxent River, will provide aircraft if required for air safety surveillance and chase boats for surface area clearance. Shore habitation has not interfered with past launches from Wallops Island and no significant change is indicated.

Senator **Warner**. Why will the Navy not capitalize on a $50 million 10-year successful development of an air-launched 2.5 Mach vehicle, strongly supported and financed in the past by the Congress, which can meet Navy supersonic target requirements at any location, more quickly, more adequately, and at less expense, both initial and recurring, than the program it is currently pursuing?

Secretary **Lehman**. The development mentioned in the question did not result in a target. That effort was strictly limited to a propulsion system concept demonstration. Evolving a target from this demonstration would entail significant additional engineering development and funding and would not yield adequate quantities of targets earlier than the modified Vandal schedule. The most effective way to acquire the needed type of target is by competitive contract. The Navy is currently preparing to request proposals from industry for full scale engineering development of a new supersonic low altitude target (SLAT). Any contractor who can achieve the performance set forth in the question with an adequate target vehicle should be a strong contender for that contract.

Senator **Warner**. What is the earliest date Aegis testing can begin against a low-altitude, supersonic, air-launched target missile, having a speed of 2.5 mach and a range of 40-50 miles?

Secretary **Lehman**. The earliest we can begin Aegis testing under the conditions you describe is when the Supersonic Low-Altitude Target (SLAT) is ready for use in June 1988. In the interim, the Navy is modifying a supersonic Vandal with MACH 2.2 speed to be available in 1984.

Senator **Warner**. Please provide development, procurement and testing time projections, together with estimated costs, for target missiles with the above characteristics. Please include such data for the Integral Rocket Ramjet.

Secretary **Lehman**. The Navy has previously considered the proposals on the integral Rocket Ramjet and rejected the IRR proposals in favor of the extended range Vandal which is a pure ramjet. These target programs were compared by the Navy to meet weapon systems testing requirements through fiscal year 1988. The extended range Vandal includes establishment of an East Coast Launch site. The integral rocket ramjet alternative was based on limited modifications to the existing vehicle configuration and additional procurement to satisfy weapon systems testing requirement.

[Dollars in millions]

Presentations	Development		Initial operations	Production procurement award	Cost
	start	finish			
VANDAL (ER) [1] 50 [1]	August 1982	September 1984	September 1984	January 1985	$31.3
Integral [1]					
Rocket 50 [1]	April 1983	September 1984	September 1984	January 1985	79.7
Ramjet					
SLAT	July 1984	June 1988	June 1988 [2]	November 1988	90.0

[1] Either of the above programs would require a follow-on competitive development of a long term target.

[2] Initial RDT&E testing available with assets remaining from development contract until production vehicles are available.

[3] In fiscal year 1982 dollars.

Question Submitted by Senator William S. Cohen

MARITIME ACADEMY TRAINING VESSELS

Senator COHEN. Admiral Watkins, it is my understanding that Admiral Carroll, who is the head of the Military Sealift Command, has authorized a study which looks into the feasibility of using our Maritime Academy training vessels as part of the Ready-Reserve Fleet. As you know, our Maritime Academies are having a difficult time keeping their vessels in top shape due to budget difficulties. By maintaining these vessels as a part of the Ready-Reserve Fleet we would not only signal our commitment to a strong merchant fleet but we would improve our ability to transport troops and supplies by sea, on short notice, if the need arises.

Would you determine for the committee whether or not this study has been undertaken? If it has been undertaken, I would appreciate your making the results of the study available to the committee as soon as they are available so that this issue can be further considered.

Admiral WATKINS. There is no feasibility study by Military Sealift Command to consider making the Maritime Academy school ships part of the Ready Reserve Force. Already units of the National Defense Reserve Fleet, these ships are on loan to the state academies in Massachusetts, New York, and Maine. The Massachusetts school ship, SS Bay State, was damaged by fire over a year ago and has not been repaired. The New York school ship, SS *Empire State,* and the Maine ship, SS *State of Maine,* are the only two active P-2 Maritime Academy ships now carried in the NDRF.

However, I believe the Senator is referring to a study MSC began on May 11, 1982, after the Falkland Islands crisis started, to ascertain all U.S. flag troop transports that would be available in the event of a U.S. contingency. In August 1982, responsibility for completion of this study was assumed by the Office of the Chief of Naval Operations. This study was completed in November 1982. It evaluated three groups of ships: available commercial passenger ships, state academy ships, and the P-2s in the NDRF. It concluded, amongst other things, that it would take several million dollars per school ship to bring them up to DOD standards.

I will be pleased to make the results of the study available to the committee in closed session.

Questions Submitted by Senator Henry M. Jackson

LEASES OF SHIPS

Senator JACKSON. Secretary Lehman, there have been recent press reports on the ultimate cost to the government of the Navy's program to lease certain ships, in lieu of buying them. Indeed, the staff of the Joint Committee on Taxation has issued a study concluding that in the final analysis, after considering the tax benefits which will accrue to certain parties associated with these leases, and the resulting expected reduction in tax revenues, it could be cheaper for the government to buy them. Do you agree with this analysis? Were potential tax benefits considered by the Navy in deciding whether to lease or buy these ships?

Secretary LEHMAN. In determining whether to lease or buy the TAKX ships, the Navy analyzed not only the benefit of leasing to the Navy, but also the effect that such leases would have on Treasury tax revenues. Our analysis indicated that leasing would result in total government savings as great as 15-16 percent. The reasons for the different results in our study and that of the Joint Committee are very technical and revolve around the appropriate lease versus buy methodology.

F/A-18

Senator JACKSON. Secretary Lehman, the House Appropriations Committee wrote the Secretary of Defense making certain allegations concerning the costs of the F/A-18 fighter aircraft. More specifically, there were allegations that certain costs associated with the F/A-18 were somehow "hidden." Has the Navy conducted any analysis or investigation as a result of these allegations? What are the results of that analysis or investigation or when can the Congress expect answers?

Secretary LEHMAN. The Navy is currently analyzing the allegations in depth. It is the Navy's position that the F/A-18 financial situation has been clearly explained to the Congress and its staff in presentations, discussions, hearings, responses to questions for the record, and official documents submitted to Congress. The Secretary of Defense directed the Defense Inspector General and General Counsel to conduct the audits and reviews requested by the Committee. This effort has been underway since mid-January, and the Navy will continue to cooperate fully with the auditors and General Counsel. The current schedule calls for completion of the financial audit and legal opinion for Secretary of Defense review by mid-April, followed by his transmittal of these items to Messrs. Whitten, Addabbo, and Edwards of the House Appropriations Committee.

U.S. NAVAL STRATEGY

Senator JACKSON. Secretary Lehman, last year, in your statement before this committee you articulated a U.S. naval strategy in the following terms: "'* * * We must be able to prevent the cutting off of the sea lines of communication to * * * vital areas. This can be carried out only by possessing sufficient offensive naval striking power to defeat and neutralize those combined forces postured to cut those lines and interfere with that access. We must plan to conduct these tasks with a large degree of simultaneity. We must have a forward strategy, a strategy which identifies and exploits Soviet weaknesses such as inherently unfavorable wartime geography."

Do you still believe that these must be the guiding principles of U.S. naval strategy? If so, are these principles incorporated in the Defense Guidance for the fiscal year 1984-88 period? Do we currently have the forces to carry out this strategy? If not, what do we need in the way of forces and when will we have them? If these princples no longer express your views, how have those views changed?

Secretary LEHMAN. As we continue to build toward our goal of restoring maritime superiority, I reaffirm those principles I enunciated during last year's testimony. Preventing enemy action against the SLOCs requires the exercise of sea control by forces prepared to operate at sea in hostile environments, over a sustained period. Sustainability, readiness, and modernization, together with the force structure we are working to build, can provide us forces that can accomplish those goals. [Deleted.]

NAVY STEAMING HOURS

Senator JACKSON. Admiral Watkins, what is the operating level of the fleet that is included in fiscal year 1984 budget request? How does this compare with the level permitted under the fiscal year 1983 and 1982 Defense budgets:

Admiral WATKINS. The fleet operating tempo profile follows:

Forces	Fiscal year 1982		Fiscal year 1983 Defense budget	Fiscal year 1984 Defense budget
	Defense budget	Actual		
Deployed	52.0	57.6	50.5	50.5
Nondeployed	29.0	29.0	26.9	29.0

CANCELLATION OF SECOND CARRIER

Senator JACKSON. Secretary Lehman, last year Congress authorized and appropriated funds for two nuclear-powered aircraft carriers. A contract for those two carriers has now been signed. There are reports that individuals who might be interested in cutting the Defense budget could try to eliminate the second nuclear carrier. What would termination of that portion of the contract relating to the second carrier cost the government in cancellation fees or contract adjustment costs?

Secretary LEHMAN. As the cornerstone of the Navy's rebuilding program, two nuclear aircraft carriers were requested of Congress in the fiscal year 1983 budget. This request generated considerable discussion and was subjected to numerous authorization and appropriations votes at the subcommittee and full committee level and on the floor of both the House and Senate. In all cases the Congress supported the request and approved funding for the two CVNs in late December 1982.

The Navy's business plan for awarding the construction contract for these two CVNs was developed in late 1981 and, in order to attain eariest possible delivery, was predicated upon award of the contract as soon as possible after funds were available.

As a result the Navy was prepared to act quickly—the two ship construction contract for CVN 72 and CVN 73 was awarded to Newport News Shipbuilding on 27 December 1982. The obligated amount of money for contract award was $3.143 billion. In addition to the basic construction obligation, escalation funds (part of the original budget approved by Congress) in excess of $1.4 billion were committed to cover the projected inflation impact over the contract's nine year life. Under this $3.143 billion two ship contract, Newport News Shipbuilding has, as of mid-March 1983, subcontracted with more than 600 vendors in 32 of the 42 states where orders will be placed for more than $550 million worth of Contractor Furnished Equipment (CFE). This includes over 12,000 tons of steel of which several thousand have already been received and are in various stages of fabrication and assembly. Major items of CFE under subcontract include main turbines and gears, weapons elevators and aircraft hositing equipment, switchboards and main condensors.

Government Furnished Equipment (GFE) is purchased by the Navy under contracts separate from the shipbulding contract. These direct Government contracts with major suppliers of material and components result in the delivery of components that will then be provided to the shipbuilder. Through mid-March 1983 more than $1.4 billion in GFE contracts have been awarded to more than 80 contractors and subcontractors. Of this amount $960 million has been awarded to two major prime nuclear component contractors (General Electric and Westinghouse) and $440 million has been obligated under an Economy Act Order to the Department of Energy.

There will be no significant additional obligations made under the shipbuilding contract during the next twelve months since the contract is fully funded in the amount of $3.143 billion. But the shipbuilder will commit funds to subcontractors beyond the $550 million already subcontracted. The shipbuilder estimates that an additional $50 million in subcontracts will be committed during the next few months. There will be additional millions of dollars subcontracted by the shipbuilder beyond the middle of 1983 but there is no time related estimate for these subcontracts at this time.

Over the next twelve months the Navy estimates that $400 million will be obligated for GFE in addition to the $1.4 billion already obligated.

In summary, more than $4.5 billion of the approximately $7 billion authorized and appropriated for the CVN 72/CVN 73 program has been contractually obligated as of March 1983. These contractual commitments and liabilities involve hundreds of companies across the nation.

As it does with any shipbuilding contract, the Navy entered into the CVN 72/CVN 73 contract with the aim of obtaining these ships at or below the contract target price and on or ahead of the contract delivery schedule. The contract contains no special provisions for cancellation of either of the carriers. It does include the standard Defense Acquisition Regulation (DAR) provision providing for termination for convenience of the Government, if it is in the best interest of the Government to do so.

The cost to cancel one of these carriers is impossible to determine. As evidenced by the hundreds of contracts and subcontracts already awarded under the program, the ripple effect of cancellation in terms of material commitments, employment, capital investment and opportunity costs would be felt by companies in almost every state in the nation.

The impact and contingent liability from cancelling one of the CVNs under contract would be substantial. Two ship contracts would have to be renegotiated and reformed into a single CVN contract with resultant sunk costs related to the cancelled ship and most certainly a higher price and later delivery for the remaining ship. Compounding the problem of trying to estimate cancellation costs is the fact that the order of magnitude of all of these costs is directly related to the timing of the cancellation decision. Even if the decision was made now, the cost to terminate would run in the hundreds of millions of dollars and result in years of claim and counter-claim litigation, "poisioning the well" with regard to future business relationships between the Navy and an important shipyard and component vendors, as claims and counter-claims grind on endlessly through the courts for the next decade.

A summary of the most serious effects that cancellation would have falls into the following key areas: Delay in achieving the national commitment to a 15 Carrier Battle Group Navy.

Loss of early delivery of remaining CVNs. CVN 72 could be delayed at least one year if CVN 73 was cancelled. In addition, excellent progress on *Theodore Roosevelt* (CVN 71) will be negated by the expected stretch-out of CVN 71 work for phasing in with just one additional carrier, leading to a 12 to 4 month delay of CVN 71 delivery and loss of projected savings due to that early delivery.

Permanent loss of substantial multiship construction dollar savings. In addition to the cost impact suggested above, cancellation of one of the fiscal year 1983 CVNs would substantially reduce the $750 million savings associated with the series construction plan approved by Congress, negating: improved planning and use of NNS manpower and facilities; reduced non-recurring engineering, planning and grouping costs; economies of scale in material procurements; reduced production gaps and improved productivity achieved through construction continuity; reduced escalation resulting from earlier delivery.

Potential higher costs of other Navy work. Cancellation of CVN 72 would potentially place substantial additional financial burden on remaining work at Newport News Shipbuilding other than CVNs.

Adverse impact on the marine industrial base nationwide and on Navy/Industry relatoniships. Cancellation would have a catastrophic effect on Navy business relations with its largest, most diversified shipbuilder and with major vendors. Just as important, cancellation would be taken by the business community at-large and the shipbuilding industry, in particular, as a lack of resolve by the Government in achieving a 600 ship Navy and in fostering the stability necessary for efficient program execution. This also would result in a serious deterioration of the ship construction and repair industrial base and seriously impact economic recovery in currently depressed industries. The impact on contingent liabilities would be substantial.

The Navy needs these aircraft carriers to regain and maintain maritime superiority. The requirement has not changed; it has not diminished. If anything, the need has increased in view of our understanding today of the threat to our Nation's security. The Navy did not award the construction contract for CVN 72 and CVN 73 in anticipation of canceling the contract at some future time. On the contrary, all planning for the award was predicated upon executing the program as expeditiously and as businesslike as possible. As a result, the program is well ahead of where it would have been had it been executed on a more traditional basis. This has compounded the complexity and the multiplicity of factors what would eventually dictate the total cost resulting from a cancellation. Total cost would have to include not only the direct cost of the cancelled ship plus the increased cost of the remaining one, but also the other costs associated with the adverse impact on employment, the deterioration of the Government—private sector business relationships, the years of litigation that potentially would ensue, and certainly the significant step backward cancellation would mean to the Navy's overall shipbuilding program. While it is impractical to estimate all of these costs, it is reasonable to suggest that the total impact would approach the contract cost of the second of the two carriers in this unique two CVN contract.

600-SHIP NAVY

Senator **Jackson**. What will be the composition of the 600-ship Navy when we attain that goal? Specifically, what ship types and how many of each, would be assigned to a nominal carrier battle group? And what ships do you envision beyond those necessary to fill out 15 carrier battle groups?

Secretary **Lehman**. Our forces in 1990 will consist of [deleted] Strategic, [deleted] Battle, [deleted] Support, and [deleted] Mobilization Category A forces, a total of 608 ships, as outlined in the following chart:

	Number		Number
Strategic forces:		Battle forces:	
SSN	[Deleted]	CV	[Deleted]
AS		CVN	
TAK		BB	
		CG	
		CGN	
Support forces:		DD	
AD	[Deleted]	DDG	
AS		FF	
ARS		FFG	
ASR		SSN	
ATS		PHM	
TAGOS		LCC	
TAK		LHA	
TATF		LHD	
		LKA	
		LPD	
MOB CAT A:		LPH	
DD	[Deleted]	LSD	
FF		LST	
FFG		MSH	
LST		MSO	
MCM		AE	
MSH		AFS	
		AO	
		AOE	
		AOR	
		TAE	
		TAFS	
		TAO	

A notional carrier battle group composition of 1990 would be as follows:

[Deleted.]

The modernization of our battle group combatants will continue as the transition is on-going from our older combatants to the new Aegis combatants of the future.

Senator JACKSON. Secretary Lehman, under current planning, when will the United States have a "600-ship Navy" as you have defined that term? How does that date compare with your projections last year at this time? What level of funding in the Shipbuilding program must be maintained in future years to stay on schedule with your current projections?

Secretary LEHMAN. We will reach our goal of a 600-ship Navy by the end of fiscal year 1989. This is unchanged from the goals I established upon assuming this office. Due to the length of time required to construct the complex ships which constitute our Navy today, no ships in the current fiscal year 1987 or 1988 programs are included in that total. I would anticipate that after fiscal year 1986 we will move toward shipbuilding programs which sustain and more finely balance the 600-ship Navy. Outyear requirements are conditional on the approval by Congress of our fiscal year 1984 through fiscal year 1986 programs.

SUPERIORITY AT SEA

Senator JACKSON. Admiral Watkins, last year, your predecessor testified that the United States Navy no longer enjoyed superiority at sea. do you agree with that statement now? If so, are we in a position of parity or inferiority to our adversaries at sea? What must be done to our force structure to regain our edge? Under current budget plans when can we expect to get those needed forces? Given the present 5-year Defense program when will we meet President Reagan's announced "objective of regaining clear maritime superiority before the end of the decade," which is cited by Secretary Lehman on page 2 of his statement?

Admiral WATKINS. Last year Admiral Hayward characterized the Navy as: "stretched thin around the globe—a one-and-a-half ocean Navy trying hard to meet three ocean commitments—and those commitments are inexorably growing" and that "our narrow margin of superiority had" vanished. He further stated that the naval balance between ourselves and the Soviets "fell well within the range of uncertainty." But, he then noted two clearly discernible trends which provided confidence and optimism: "We are a Navy on the move. We have momentum and it is in the right direction. And, we have an administration that is determined to build toward maritime superiority in this decade, which is captured by the phrase 'a 600-ship Navy.'"

In my formal statement to the House Armed Services Committee, I described the Navy this year as being a Navy on the mend—a Navy that has come a long way in two years, but still has a long way to go in reestablishing the maritime superiority so vital to America's security. Two years ago the then Chief of Naval Operations, Admiral Hayward, said that the Navy was operating at the "ragged edge of adequacy when it comes to our globally disposed forces." That is not the case today. We are attracting and retaining high quality people, increasing and modernizing our major weapons systems, and enhancing the readiness and sustainability of the battle force. The budget before you is an integral part of a broad and comprehensive program leading to a 600-ship Navy composed of 15 carrier battle groups, four battleship centered surface battle groups, amphibious forces, strategic and attack nuclear submarines, escort, and support forces, vital to our regaining the maritime superiority our defense posture requires. These force levels, with your continued support for the program before you, can be realized by the end of this decade. The goal is in sight. We have made major progress over the dismal appraisal of our naval strength made two years ago. We are much better now in terms of our warfighting capability, thanks to your recognition of the need to rebuild our strength at sea, but we have a considerable way to go. Your support now is vital to our continued progress—to our reaching the goal of being able to provide adequately for our maritime security needs. Together we can achieve the stated goal of maritime superiority. If either of us falter, we will return to the abysmal conditions that characterized our naval forces only two years ago, while the Soviets continue to strengthen their naval capability.

NAVY PETTY OFFICER SHORTAGES

Senator **Jackson**. Secretary Lehman, in recent years we have heard about a substantial shortage (the number 20,000 has been used) in the number of petty officers needed in the Navy. What is the status of this shortage—is it gone? How much of a shortage remains? In light of current retention figures, when will any remaining shortage be eliminated?

Secretary **Lehman**. At the end of fiscal year 1982, the total shortfall in the Top-6 enlisted paygrades was 17,441 and is projected to be 11,700 at the end of fiscal year 1983. This improvement has resulted from the increased retention we have experienced for the last 2 years. Assuming that we maintain a competitive military compensation system, we project the elimination of the petty officer shortfall by the end of fiscal year 1988. Navy intends to eliminate the petty officer shortfall by holding our accessions roughly constant and building the force through increased retention. Navy will continue to increase the delayed entry recruiting program and will sustain the effort to recruit 12,000 prior service veterans per year while maintaining the proper balance in skill areas.

AMPHIBIOUS LIFT CAPABILITY

Senator **Jackson**. General Barrow, in previous testimony on Marine Corps posture you have expressed concern about the need to modernize and expand our amphibious lift capability. In your judgment, will the initiatives in this budget and the current 5-year Defense program adequately meet the needs that you articulated and meet them in a timely fashion? If not, where and how will we be falling short? In the overall shipbuilding program what priority would you assign to the LHD-1 program?

General **Barrow**. The Navy's current amphibious shipbuilding effort is projected to provide sufficient ships to simultaneously lift the Department of the Navy (DON) mid-term lift requirement of the assault echelons (AE) of a Marine Amphibious Force (MAF) and a Marine Amphibious Brigade (MAB). Presuming the present shipbuilding impetus is maintained, I am confident that our amphibious shipbuilding programs are on track and directed towards revitalizing our amphibious capability in a timely manner. Considering the overall amphibious ship construction program, my first priority must go to the LSD-41 Class. These ships will replace the soon-to-retire LSD-28 Class. Each new LSD will have the capability to transport at least four landing craft, air cushion (LCAC). I consider the LCAC to represent a revolutionary breakthrough in surface ship-to-shore movement. My next priority would focus on the LHD-1 Class—basically a modified LHA designed to replace the aging

LPH Class helicopter platforms. The LHD-1 will be able to accommodate V/STOL aircraft, helicopters, LCAC and conventional displacement landing craft—truly a multipurpose amphibious ship. The fiscal year 1984 budget will include funds for the first ship of the class. The Five Year Defense Plan projects a follow-on ship class, the LPD-X, to initially augment and ultimately replace our fine force of LPD's. As I look ahead, I am encouraged that the Navy/Marine Corps team is fully cooperating in an effort to fulfill our amphibious lift requirements by the mid-1990's.

MANAGEMENT INITIATIVES IN THE NAVY DEPARTMENT

Senator **Jackson**. Secretary Lehman, in your statement you "emphasize five key changes in the Department of the Navy" with respect to management (p. 24). One is "competition, not merely in source selection but in procurement through second sourcing wherever possible." (p. 24). What programs will be second-sourced under this year's budget request? In what programs do you expect to pursue second sourcing over the next five years?

Secretary **Lehman**. Examples of major systems where second sourcing is being planned using fiscal year 1984 funds are Vertical Launching System (VLS) for our CG-47 and DDG-51 class ships, MK-12 and MK-70 Rocket Motors for Standard Missiles, and the Tomahawk All-Up-Round. We also are continuing second source procurement of AIM-9M-Side-Winder missiles, CG-47 class Aegis cruisers, and SSN-688 class submarines, all of which were initiated in earlier program years. We are also initiating second source strategies for such systems as the Harm and Phoenix missiles and the AN/AYK-14 airborne computer.

I can assure you that our major systems are continually being considered for initiation of second sources of supply wherever we do not anticipate a competitive environment will exist without it.

PUBLIC SHIPYARD

Senator **Jackson**. Is the Navy still actively examining the possibility of constructing nuclear attack submarines (either SSN 688 or a follow-on class) in a public shipyard?

Secretary **Lehman**. A recent Navy study determined that the present nuclear ship construction program can most efficiently be performed in the two private shipyards currently performing that work if no severe disruption of work flow occurs. The study further concluded that the need for a third nuclear ship construction yard should be reviewed periodically taking into account any changes in the nuclear ship construction program and the performance of the two shipyards involved.

HOMEPORTING OF SHIPS

Senator **Jackson**. When will the Navy specify which ships will be included in any dispersal of homeports?

Secretary **Lehman**. The Strategic Homeporting Concept would be implemented over the next 10 years through an appropriate distribution of newly acquired ships, coupled with some reassignment of current ships to other ports in order to effect a revised ship mix in several major ports. Studies are now underway to identify facilities requirements and to determine cost implications. As these studies are completed, more specific proposals on the types and numbers of ships in each port will be developed.

TRANSFER OF MISSIONS TO THE RESERVES

Senator **Jackson**. Admiral Watkins, you say in your statement that you are "determined that we place more emphasis on the integration of the Reserves into our operational forces." Has the Navy given serious consideration to transferring missions and equipment currently in the active force to the Naval Reserve?

Admiral **Watkins**. Reserve forces play a key role in our combat sustainability and we are placing increasing emphasis on the integration of the Reserves into our operational forces. Reserve units are being enhanced to provide rapid mobilization and augmentation of the active fleet on an individual or unit basis. Most importantly, ongoing programs to put modern hardware, ships and aircraft into the Reserve and to develop an enhanced and fully integrated reserve repair capability at the intermediate activity level are beginning to pay great dividends. Reserves share fully in the mission areas assigned to our active forces and are becoming significantly more capable in terms of contributing to the accomplishment of those missions.

NAVAL RESERVE

Senator **Jackson**. Is there any reason, for example, why amphibious support ships (LSDs and LSTs) or service support ships (AOs and AEs) currently in the active fleet could not be transferred to the Naval Reserve?

Admiral **Watkins**. Two LSTs are presently in the Naval Reserve Force. However, once a unit such as an AO, AE, LSD or LST is transferred to the Naval Reserve, its active duty manning is reduced and its primary peacetime mission becomes training the Naval Reserves. With reduced active duty manning, these ships are unable to meet the operational tempo required of deployed ships. Additional reductions in deployable AOs, AEs, LSDs and LSTs, given the forward deployment commitments of the active forces, are not feasible. The two LSTs presently in the Naval Reserve Force were nominated because these two units created the least operational impact on the active deploying forces.

MILITARY RETIREMENT SYSTEM

Senator **Jackson**. Admiral Watkins, your statement emphasizes the importance of the military retirement system as a retention tool. As you know, the fiscal year 1984 budget includes a proposal to reduce future cost-of-living adjustments for all Federal retirees, including military retirees, by one-half until age 62. In your opinion, what effect would enactment of the proposal have on retention, particularly in the senior petty officer ranks?

Admiral **Watkins**. I personally believe the impact would be devastating both to individual members and to force retention. Making a one-half COLA cap permanent would cause our typical retiree to lose almost half of the real value of retirement pay by age 62. Translating that to enlisted retention, we project the loss of 14,000 Navy careerists by the end of fiscal year 1988.

As recently as two weeks ago my fleet commanders reported to me that concern over retirement program changes was the number one personnel issue among career officers and petty officers. This is borne out in survey results from sailors and officers who have separated or reenlisted recently.

Qualifying for a reasonable retirement is listed as the number one reason senior enlisted careerists reenlisted in 1982, and so far in 1983.

Additionally, our mid-grade officers list possible erosion of benefits, particularly retirement program changes, as an increasingly important factor in their decision to get out.

The ultimate impact of changes to the retirement system on force readiness will depend on the members' perception of the stability and dependability of the compensation system. Careerists expect that the benefits which were available to them when they made their career decision will remain available to them when they have completed their career. Any major change in those benefits, and particularly to the retirement benefit, would have a significant negative impact.

MILITARY PAY RAISE

Senator **Jackson**. Admiral Watkins and General Barrow, a complete freeze on military pay in fiscal year 1984 as the President has proposed would mark the first year in over 20 years that there has not been at least some annual increase in pay. Should Congress make room in the fiscal year 1984 defense budget for at least some pay raise by reducing funds in other areas? What programs would you suggest reducing to fund a military pay raise?

USMC

General **Barrow**. The fiscal year 1984 budget is a balanced and carefully weighted document. During its development process very painful decisions in regard to end strength, force structure and procurement were made in order to stay within Total Obligational Authority. The complexities and interrelationships within the budget preclude a simple this or that approach in trading programs for a pay raise. A pay raise could not be absorbed without significant adverse impacts on operational readiness and sustainability.

NAVY

Admiral **Watkins**. We realize that, for the first time in many years we are not planning for a military pay raise. We also realize that this is an unusual year, in that this administration has provided for significant increases in the defense budget, while asking the American people to make sacrifices in other areas. The pay freeze is a display of our seriousness about reducing costs and sharing the burden.

Senator **Jackson**. If Congress enacts a pay raise in fiscal year 1984, what form should it take? Should it be across-the-board or targeted?

USMC

General **Barrow**. The Marine Corps has traditionally supported an across-the-board pay increase; however, if the raise is only 4 percent an approach that would target the increase toward the career force, officer and enlisted, may have merit. It could optimize the use of pay raise dollars while minimizing the impact of the cap on our career force and provide an incentive for our younger personnel to get promoted. Additionally, shortages that occur in the lower pay grades because of the further loss of pay comparability would be easier to fix than career force shortages. We have asked our FMF Commanding Generals for their assessments of a targeted pay raise. I would prefer to withhold a final opinion on the subject until these responses have been reviewed.

Since the pay raise last October was capped, it is particularly important that this pay raise be effective on October 1, 1983, to provide a positive signal that the commitment made by the Administration to maintain comparability between military and private sector pay will eventually be fulfilled.

Any pay raise, targeted or not, could not be absorbed without significant adverse impacts on operational readiness and sustainability.

NAVY

Admiral **Watkins**. A military pay raise enacted by Congress for fiscal year 1984 should be equally applied to all three statutory elements of military pay—Basic Pay, Basic Allowance for Quarters (BAQ) and Basic Allowance for Subsistence (BAS)

If Congress enacts a pay raise in fiscal year 1984, the Navy would prefer to use the available funds to minimize the retention impact on our career force. By this, I mean Navy would target the increase to our career petty officers and mid-grade officers.

A pay raise enacted by Congress should be consistent with present law and go into effect on October 1, 1983.

MILITARY JUSTICE

Senator **Jackson**. Secretary Lehman, you have ordered the Navy's afloat correctional custody units closed. Is that a permanent order, at least for as long as you are Secretary of the Navy?

Secretary **Lehman**. Yes it is. Since the operation of correctional custody units was imcompatible with the operational environment aboard Navy ships, I directed the CCU operations afloat be discontinued. Shore CCUs have been established at key locations around the world to support the fleet and shore activities.

Senator **Jackson**. Secretary Lehman, after the military justice cases involving incidents aboard the U.S.S. *Ranger* were concluded, you ordered a review of those cases and how they were prosecuted. Based on that review, is the Navy planning on making any changes in the way it investigates and prosecutes such cases? If so, what are those planned changes?

Secretary **Lehman**. My review of the criminal cases arising from the incidents aboard the U.S.S. *Ranger* convinced me that our military justice system, generally, functioned well. The investigation of the incidents was open-minded and extensive; the prosecution and the defense in the cases appeared uniformly able and vigorous; and the results of the trials indicated that reasonable men may differ when asked to assign criminal responsibility for various acts or omissions. The investigation and prosecution of the *Ranger* cases demonstrated a basically healthy legal system. This is not to say that our military justice system cannot be improved. As you know, Senator, there are a number of proposals for change presently under review by this committee, which the Department of the Navy supports. I support these initiatives in the exercise of my general oversight responsibilities for military justice in the Navy and Marine Corps, however, and not as a result of the *Ranger* cases or any other particular case or cases.

Senator **Jackson**. Secretary Lehman, in the fall of 1981 the Navy issued new, much more detailed, regulations on the administration and operation of brigs and CCUs. Have those regulations now been fully implemented?

Secretary LEHMAN. Yes, they have. The new regulations for brigs and correctional custody units are implemented with the publication of manuals of the administration of brigs and correctional units on September 24, 1981.

Senator JACKSON. How have commanders reacted to the implementation of these regulations?

Secretary LEHMAN. The reaction by commanders to the promulgation of these directives and standardization of the corrections has been extremely favorable.

Senator JACKSON. What office in the Navy here in Washington is charged with ensuring adherence in the field to these regulations? How will that office accomplish that task?

Secretary LEHMAN. For Navy brigs and CCUs, the Chiefs of Naval Personnel is charged with oversight responsibility to ensure the field's adherence to these regulations. This is accomplished by monitoring inspection reports to ensure that all directives are implemented and action is taken to correct any deficiencies.

CINCLANTFLT, CINCPACFLT, CINCUSNAVEUR and CNET are charged with the responsibility for conducting inspections of the Brigs and CCUs and providing a copy of the results to Chief of Naval Personnel. The Provost Marshal Section of HQMC has oversight responsibility for all Marine Corps brigs and CCUs. This responsibility is exercised through periodic Navy IG inspections.

Senator JACKSON. How frequently will any inspections of brigs and CCUs be conducted?

Secretary LEHMAN. In the Navy, formal inspections are conducted at least annually by CINCLANTFLT, CINCPACFLT, CINCUSNAVEUR and CNET. The Navy IG is also charged with inspecting whenever his inspection schedule takes him into a geographical area with a brig or CCU. The Marine Corps IG conducts biannual inspection of each brig and/or CCU.

Senator JACKSON. What level of budget resources is being devoted to the training of Navy personnel to manage and supervise the brigs and CCUs? How many people will be able to be trained with this level of funding?

Secretary LEHMAN. All personnel ordered to the brigs are ordered via the appropriate formal correctional schooling. The cost of training personnel assigned to correctional duty for a year is about $783,000. Approximately 20 officer and 615 enlisted personnel assigned to brigs will be trained this year. A formal course for correctional custody staff will begin this summer which will train approximately 80 personnel this year.

Senator JACKSON. What are the Navy plans for building or altering brigs and CCU facilities over the next 5 years?

Secretary LEHMAN. A brig facilities requirements plan was developed to replace brigs with physical plant deficiencies and to increase prisoner capacity. The plan calls for the building of new brigs and the expansion and renovation of existing brigs during the next 5 years as follows:

	Location	Type facility/work
Fiscal year:		
1985	Jacksonville	New brig.
1985	Treasure Island	New brig.
1985	Sigonella	New brig.
1985	Rota	Renovate brig.
1985	Norfolk	Expand brig.
1985	Memphis	New brig.
1985	Seattle	New brig.
1985	Pensacola	New brig.
1985	Long Beach	New brig.
1986	San Diego	New brig.
1986	Great Lakes	Renovate brig.
1986	Philadelphia	Renovate brig.
1987	Pearl Harbor	New brig.
1987	Subic Bay	Expand brig.
1987	Newport	Expand brig.
1987	Corpus Christi	New brig.
1988	Charleston	New brig.
1988	Guam	New brig.

There is currently no requirement to construct or renovate a Navy CCU. Additionally, the Marine Corps, in a land-swap agreement with the Japanese government, will have a new brig/CCU constructed for them (by the Japanese) at Camp Butler, Okinawa, in the fiscal year 1985 and 1986 timeframe.

Senator JACKSON. Secretary Lehman, aside from the promulgation and implementation of new regulations on brigs and CCUs and any construction efforts, in what, if any, other ways is the Navy focusing on the issues associated with military corrections?

Secretary LEHMAN. The Department of the Navy Corrections Manual (SECNAVINST 1640.9A) has been revised and was promulgated on 16 February 1983. All correctional training courses are continually updated and all training has been consolidated at a single location to insure uniformity and maintenance of high standards of training. All staff assigned to brigs and correctional custody units will be trained enroute to this duty. All ashore brigs and correctional custody units have been provided with audiovisual equipment and programs to assist in the motivation and restoration of prisoners and awardees. While it is intended with the promulgation of these directives that the current policies and programs remain in effect over the next several years, the corrections program will be closely monitored to insure it is effectively administered.

POSSE COMITATUS

Senator JACKSON and Senator NUNN. Secretary Lehman, the Navy has been providing assistance to civilian authorities in the enforcement of the drug laws, primarily in the Caribbean. Precisely, what forms of assistance has the Navy been providing? Specifically, is the Navy interdicting suspected drug ships or planes in the Caribbean area? What additional forms of assistance is the Navy currently authorized to provide?

Secretary LEHMAN. The policy of the Navy with regard to assisting civilian authorities in the enforcement of drug laws is to provide all possible assistance, within the legal parameters of Public Law 97-86, commensurate with the maintenance of its capability to perform its primary national defense mission. The major thrust of the Navy effort has been to establish coordinated procedures integrating the requirements of law enforcement agencies with routine scheduled training and operational commitments. Urgent unscheduled requests for dedicated assets are considered on a case basis and receive Secretariat approval in those instances where the readiness of Navy units will not be adversely impacted. Established procedures coordinated with individual law enforcement agencies include the following:

a. Embarking Coast Guard Law Enforcement Detachments onboard selected Navy ships scheduled to operate in drug threat areas.

b. Towing vessels seized by the U.S. Coast Guard units to ports and providing transportation for prisoners in Coast Guard custody.

c. Providing logistic support, such as replenishment at sea, for deployed U.S. Coast Guard vessels.

d. Transmitting locating data to the Coast Guard on suspect ships and aircraft provided by Navy units operating in high interest areas. This is called the USN/USCG sighting program.

e. Providing the USCG access to long range radars at U.S. Navy shore facilities.

f. Providing surplus equipment to law enforcement agencies on loan basis.

As a matter of policy, U.S. Navy units do not interdict suspected drug ships. Interdiction missions are sometimes performed by Coast Guard Law Enforcement Detachments using Navy ships as staging platforms. Procedures have been established whereby operational control of Navy ships with Coast Guard Law Enforcement Detachments embarked is passed to the Coast Guard when the Navy ship becomes involved in a law enforcement operation.

In instances of airborne interdiction support Navy aircraft frequently act as surveillance platforms, vectoring civilian law enforcement aircraft to intercepts. Navy surveillance aircraft do not become involved in the actual interdiction.

In addition to these routine procedures providing adhoc support to law enforcement agencies, the Navy provides dedicated support in the form of patrol and airborne early warning aircraft to the Coast Guard, Customs Service, and other civilian drug enforcement agencies. Specifically, Navy dedicates limited active and Reserve E-2 (airborne early warning) aircraft support to the Customs Service. In addition, Navy has supported the South Florida Task Force, at the Vice President's request, by staging P-3 patrol aircraft patrols off the Caribbean choke points out of Roosevelt Roads, Puerto Rico. E-2 support has been provided since May 1982 and P-3 patrols were conducted from October 1982 through January 1983.

IMPACT ON NAVY TRAINING READINESS

Senator **Jackson**. What, if any impact have these assistance efforts had on the training of the personnel and readiness of the equipment being used in these assistance efforts? Is there a direct trade-off between the activities being conducted in these assistance efforts and normal training? If not, what are the differences?

Secretary **Lehman**. Emphasis on integrating civilian law enforcement agency support requests with scheduled operational and training missions has minimized any impact on readiness. There is seldom, however, a direct correlation between assistance support requested and fleet training requirements. The E-2C aircraft illustrates the complexities of the problem. The sophisticated weapons systems of the E-2C are an essential ingredient of forward deployed aircraft carrier operations requiring an intensive and precise training syllabus in the short turn-around periods between carrier deployments. This training is required to certify the E-2C crew and equipment as fully combat ready at the commencement of each deployment. While drug support/surveillance missions involve some elements of the required training (e.g., navigating to a search area; searching an assigned sector; vectoring an aircraft to an intercept) these elements constitute only the most basic skills needed by the crews preparing to operate these highly sophisticated aircraft in a complex combat environment. The periods of time dedicated to drug support missions necessarily decreases the amount of time available for training essentials during predeployment workups.

COST OF NAVY EFFORTS

Senator **Jackson**. What are the Navy's incremental costs of providing this assistance? Is the Navy going to be reimbursed for these costs by the government agencies to which the assistance is being provided? If not, why not?

Secretary **Lehman**. During fiscal year 1982 the Navy became heavily involved in providing assistance to civilian law enforcement agencies in support of the national effort to curb the flow of illicit drugs into south Florida. Fleet and Reserve units supported this effort with both ships and aircraft (E-2C/E-2B/P3C). Aircraft services have been provided on a dedicated basis, while ships with U.S. Coast Guard boarding teams embarked have provided support incident to normal training operations.

During fiscal year 1982, Navy absorbed $1.2 million for drug interdiction support. We did not receive (nor officially request) reimbursement. During fiscal year 1983 the Appropriations Joint Conference Committee added $25 million for E-2C flying hours and depot maintenance incurred by suppport for drug interdiction operations.

The fiscal year 1984 President's budget includes funds in the amount of $845 thousand to provide 1,080 flying hours for E-2C drug interdiction support. Fiscal year 1982 actuals and fiscal year 1983 projected costs (as of 1 February 1983) are as follows:

[In thousands of dollars]

Type	Fiscal year—	
	1982	1983
E-2C	$810	$188
E-2C	162	16
E-P3	110	713
Ships	81	13
Totals	1,163	930

The issue of reimbursement has not been resolved. There is conflicting guidance on this subject, and it is currently being addressed by the Office of the Secretary of Defense.

QUESTIONS SUBMITTED BY SENATOR SAM NUNN

NAVY CAPABILITY AND "THREE WAR" STRATEGY

Senator **NUNN**. In his fiscal year 1984 Posture Statement, Secretary Weinberger stated that the long term goal is concurrent reinforcement of NATO, Southwest Asia, and the Pacific and to defend simultaneously all three areas. Can the U.S. Navy meet your portion of this requirement. When will you have this capability and does a 600-ship Navy fulfill this requirement?

Admiral **WATKINS**. Secretary Weinberger, in his Annual Report to the Congress of fiscal year 1984, said "our long-term goal is to be able to meet the demands of a worldwide war, including concurrent reinforcement of Europe, deployments to Southwest Asia (SWA) and the Pacific, and support for other areas." The important points are that these are long-term goals, that we are not seeking the capability to reinforce and defend simultaneously in all three areas. I believe a careful reading of the Secretary's words will confirm that.

Nevertheless, since the Soviet Union already has enough active forces and reserves to conduct simultaneous compaigns in more than one theater, war could spread to several regions. In fact, we must expect that a war with the Soviet Union would be global in scope. No prudent planner would plan otherwise. In a war against the Soviet Union we cannot afford to leave any theater uncontested or abandon any of our allies.

Our allied reinforcement objectives are designed to augment our forward-deployed forces with mobile reserve forces essential to block enemy breakthroughs. While current sealift can deliver follow-on forces and supplies, it cannot deliver the immediate deployment requirements for the initial combat forces and their support. We will make headway in sealift with the conversions of four high-speed SL-7 ships and four more SL-7 conversions are requested in the fiscal year 1984 programs. The U.S. Merchant Marine provides an invaluable supplement to our warfighting posture and sealift capability. Its revitalization should be considered an important national priority. But, while we are making progress in sealift, the U.S. Merchant Marine has decreased from more than 5,000 ships during World War II to less than 600 ships, which severely limits our flexibility. I strongly support its revitalization as a long-term investment in our national defense.

As I have said, our Navy is "on the mend". We are proceeding in the right direction at about the right pace to meet our objectives. In the long run, once we have attained the 600-ship Navy, we should be significantly more able to meet those long-term goals set forth by Secretary Weinberger.

NUCLEAR WAR AT SEA

Senator **NUNN**. In testimony last year, Assistant Secretary Perle testified that the United States would not limit nuclear war started at sea to sea but would escalate this conflict onto land. Do you think this is an appropriate U.S. policy?

Secretary **LEHMAN**. A primary objective of naval theater forces is to deter Soviet initiation of nuclear war at sea. I do believe that it is appropriate, as Mr. Perle testified, that U.S. policy is to strengthen naval TNF deterrence by making it clear that a nuclear war beginning with Soviet nuclear attack at sea will not necessarily remain limited to the sea. This is not a declared escalatory policy. It is policy consistent with national policy requiring a wide range of options to respond to a Soviet challenging at any level of conflict.

The objective of this policy is to tell the Soviets that the bases from which an attack on U.S. naval forces might be initiated may not necessarily be sanctuaries. Given the importance of the oceans to this island nation it would be unwise to adopt any policy which would by default allow the Soviets to believe they could neutralize the U.S. fleet through the use of nuclear weapons and not risk attacks on the bases which initiated and/or support those attacks.

READINESS—ASW

Senator **NUNN**. You mentioned in your statement the improvements in readiness that are occurring in the Navy, and I welcome these improvements. However, my staff and I personally visited two P-3 ASW squadrons based overseas whose flying hour allocations and key consumables for ASW missions were lower in the last two years than in the previous administration. What would account for this situation?

Admiral **WATKINS**. Flight hour allocations for P-3's declined between 1981 and 1983 (e.g., Atlantic Fleet P-3 flight hour allocations, 1981: 97,047 hours; 1982: 90,477 hours; 1983: 85,253 hours); however, in fiscal year 1984 we project an increasing flight hour program for the P-3 community which will return to the pre-1981 level [deleted].

The second part of your question involves sonobuoy allocation levels. As compared to 1980, sonobuoy deliveries were reduced [deleted] in 1981 and [deleted] in 1982. This precipitated a serious depletion of war reserves which could only be slowed by a reduction in peacetime allocations. Therefore, OPNAV directed a reduction in fiscal year 1982 peacetime allocations to a level below those of fiscal year 1981. Since the majority of peacetime buoy expenditures are for actual ASW surveillance operations, the fleet has found operating without impact to training buoy allocations very difficult. Because of impact to essential training, we have found it necessary to authorize a limited increase in peacetime allocations to fiscal year 1981 levels to relieve the problem. Based on projected procurements and expenditures, we will reach a satisfactory war reserve level [deleted].

COST ESTIMATES OF NEW WEAPONS

Senator NUNN. What reforms are needed in the area of more realistic initial cost estimates for new weapon systems and what have you undertaken in this respect?

Secretary LEHMAN. Providing the most realistic initial cost estimate for all major programs is a foremost Navy objective. Accordingly, the Navy has taken prompt action to identify initiatives necessary to accomplish this objective. In broad terms these initiatives fall in three areas: staffing and organization of the cost analysis function, focusing the cost analysis and program manager staffs on the execution of baseline cost analyses for all new major programs, and more effective exploitation of modern computational tools for cost analysis. The specific initiatives that have been taken include:

(1) Consolidation and strengthening of the cost analysis staffs in Systems Commands and Navy Material Command.

(2) An intern and career development program to attract and train highly qualified entry level personnel.

(3) Baseline cost audits for priority major programs such as HARM and ALWT. Baselines cost audits explore alternative cost policy options, such as expanded vendor competition, as well as providing documented realistic cost estimates.

(4) The development and implementation of new interactive computer tools for the preparation and rapid updating of cost data bases and cost estimates. These tools promise more productive use of a limited number of cost analysts and will increase the quality and quantity of realistic baseline estimates.

(5) Strengthening of the oversight role to insure that realistic cost estimates are provided to support the decision process in a timely manner.

(6) A new policy directive for cost analysis to revitalize the cost estimation function.

It is important to distinguish between the development and production phases of a program. The former can never be as accurately predicted as the latter. Congress should require separate estimates for each.

PROCUREMENT IMPROVEMENTS

Senator NUNN. You and I have discussed needed procurement reforms, especially as they relate to cost growth, and you have had some notable successes in this area. What do you attribute this success to and what additional measures are needed in the area of procurement reform?

Secretary LEHMAN. Success in controlling cost is first of all developed by a management culture that cost control is important. Too many times, in the quest for more performance, emphasis on cost control becomes inadequate. We recognized early that cost control was fundamental to establishing a larger Navy and have focused on cost control.

However, there are many obstacles. Our contracting force has to be competent and professional. Yet, the Office of Personnel Management wants to downgrade their professional status. Instability in programs, induced from any source often increases costs, whether derived from technical change or production rate change. In many cases, second sourcing is a valuable tool for controlling costs, but many forces operate to prevent this action in the Congress and Executive Branch.

I believe the Congress needs to continually reflect our concern for cost control, even if that concern works in opposition to local political interests.

Senator NUNN. Has the unit cost amendment been helpful to you in your statutory duty of managing weapon systems procurement?

Secretary LEHMAN. The amendment has been helpful in focusing attention on the unit aspect of program costs. It would be of greater help and an improvement in the process if threshold breach reports were triggered based on constant unit dollars as opposed to then-year dollars which is now the case. This would encourage concentration on real unit cost growth as opposed to changes in inflation rates.

Now, I would like to turn to the Selected Acquisition Reports. Credibility and utility of the Selected Acquisition Report (SAR) system have been the subject of interest at all levels. The report is supposed to assist Defense top-management and the Congress in making acquisition management decisions. It fails to accomplish such an objective. Over the years, it has evolved into a vast collection of data, requiring large expenditure of effort in preparation and review with little observed utility. In fact, confusion has been more often the product. I can see no reason why such a product should be prepetuated. I commissioned a top-level study group to review the system and provide recommendations. I have received their report. Of relevance to the spirit of your question, it concludes the following:

(1) Consider the Unit Cost Report as the main reporting instrument to Congress. The information provided (i.e., unit costs, quantities, etc., plus the notification of cost breaches, along with operational and technical data now provided in the Congressional Data Sheets) fulfills the top-level review needs of Congress.

(2) Unit costing should be on a constant dollar basis in a base year of the most recently submitted budget. Comparisons being made on constant dollar basis using the most recent experience data would have much greater accuracy and validity on which to base conclusions associated with controllable change.

(3) Steps taken by Congress to simplify the SAR are valuable, but the redundancy between the SAR and Congressional Data Sheets should be eliminated. This would leave only the Unit Cost Report and the Congressional Data Sheets.

Such a report change is based on the merits of the system already initiated under the "Nunn amendment" that provides the appropriate "management-by-exception" type of review as supported by documents already provided to Congress under the provisions of Article 139, Title 10. This recommendation should, in no way, be interpreted as implying that we will not internally modify our acquisition information systems to provide better top-level oversight and review. It simply meets the criticism and failure that has surrounded the SAR for some time and will permit us to focus on the substance of acquisition management, not a report.

600-SHIP NAVY

Senator NUNN. What is the number in the fleet ship count today? Have the counting rules changed from last year?

Secretary LEHMAN. The Navy's ship battle force is 514 ships. Battle force counting rules have not changed.

Senator NUNN. You indicated in your statement that you will reach the 600-ship Navy by 1989.

Last year at this same hearing, I asked both you and Admiral Hayward about the 600-ship goal and various changes in the counting rule. You both submitted detailed charts explaining the counting rules.

When the last administration took office, changed counting rules increased the fleet ship count from 476 to 555. When this administration took office, you decreased the fleet ship count from 538 to 479. What is the number in the Fleet ship count today? Have the counting rules changed from last year?

Secretary LEHMAN. As of today there are 514 ships in the ship battle force count. No change to the fleet counting rules has been made since last year.

Senator NUNN. Are there more or less new ships in the year's 5-year plan than projected in the last year's 5-year plan?

Secretary LEHMAN. The five year plan submitted with the fiscal year 1983 President's budget contained 133 new construction ships and 16 conversions for a total of 149 ships. The fiscal year 1984 shipbuilding plan contains 124 new construction ships and 21 conversions or acquisitions. There are nine fewer new construction ships in this year's plan.

Senator NUNN. Are there more or fewer deactivations in this year's 5-year plan as opposed to last year's 5-year plan? What is the number?

Secretary LEHMAN. Ship deactivations are not presented annually on a 5-year basis. In fiscal year 1983 we will, by current planning, deactivate 17 ships. Our plan for deactiviation in fiscal year 1984 currently contains 5 ships.

Senator NUNN. How many of your ships in this and last year's 5-year plan will be delivered by 1990?

Secretary LEHMAN. Recognizing the fact that last year's plan has one additional year in which to construct ships prior to 1990, 61 new construction ships and 16 conversions in last year's plan will deliver prior to the end of CY 1989. Forty-six new construction ships and 21 conversions and acquisitions in this year's will deliver by the end of CY 1989.

Senator NUNN. How many ships from the previous administration's shipbuilding program have been delivered during this Administration and how many will be delivered and operational that will add to the current fleet ship count.

Secretary LEHMAN. Since 20 January 1981, 28 ships (19 of which are Battle Force Ships) appropriated during the previous administration have been delivered to the Navy. 31 ships from that era are still under construction. For the purpose of this response, ships contained in the fiscal year 1977-1980 programs are considered to be from the previous administration.

AEGIS COMPETITION

Senator NUNN. Last year the Navy initiated a second source for the Aegis cruiser and you stated this year you plan to compete the two shipyards. Has the Navy ever studied also second sourcing of the Aegis radar system as well since this is a major part of the cost? Do you see an advantages in competing the radar and would you be willing to conduct a study on this possibility?

Secretary LEHMAN. Between 1979 and 1981, the Navy studied the acquisition strategy for the Aegis Weapon System. Competition, second sourcing, multi-year procurement and break-out were some of the topics considered. One of the conclusions was that it was not economically sound at that time to second source at the system level, since the Aegis Weapon System is being built at rates too small to gain cost advantage through competition, at the system level. However, it was found that competing certain components of the system had merit as long as rigid configuration control is invoked. The Navy embarked on that path, and in the last few years, has held many competitions at the component level. Some of these required the creation of a second source before any competition could be held. Examples of these competitions and some of the competitors are:

High power radar tubes—Litton and Varian.

Array foundations—FMC Northern Ordinance and Rockwell International.

Various electrical connectors—Amphonal and Bendix.

Semi-conductors—Motorola and Texas Instruments.

CWI tubes—Varian and Hughes.

Power supplies, gyro's, cabling—many competitiors.

In the relatively short period that the Aegis Weapon System has been built, the cost has come down dramatically, because of good management and competition. Since 1978 these reductions have been 50 percent in then year dollars and 65 percent in constant dollars.

Above all consideration, the Navy's major concern is the integrity of the Aegis Weapon System be maintained and that the gear perform satisfactorily. Providing Aegis Weapon Systems which are reactive to the threat depends on strict quality and configuration control.

Now that our expanded Aegis technology shipbuilding program is expected, the Navy will evaluate the contribution a second source could make to cost control while maintaining high quality standards.

FALKLANDS LESSONS LEARNED

Senator NUNN. You mentioned that the Falklands underscores the fact that it would be impossible today to mobilize sufficient strategic sealift for adequate conventional deterrence in the face of attrition from submarine warfare on the scale of World War II. What then, is the role of the U.S. carrier battle group and allied forces in sea lane control?

Secretary LEHMAN. Current naval strategy for the achievement of maritime objectives is built upon a number of fundamental premises. First, the Soviet threat to the maritime lifelines of the free world is now permanently deployed in every area of our vital interests. It follows that a conventional naval conflict between East and West cannot be limited at sea to a single ocean area. Second, the global nature of our naval force requirements derives from some forty treaty relationships.

A third major premise is that the West can no longer rely on a passive defensive posture at sea. We simply do not have the merchant tonnage available to sustain heavy losses in a submarine war of attrition as we did in World War II. The Soviets today have over 280 attack submarines; Hitler began the World War II with fewer than 50 ocean-going submarines.

The Soviets are well aware of the maritime vulnerability of the West. They have assembled a massive fleet of diesel and nuclear attack submarines, and have exercised it with the intention of operating in time of war from areas much closer to the

North Atlantic than the Kola Peninsula. Our answer to this threat cannot be simply to throw a passive barrier across the Greenland-Iceland-UK gap. We must be able to prevent the Soviets from achieving the initiative and thus enabling their submarines to prey on shipping in the Atlantic and Pacific.

Thus our maritime strategy must be based on a forward defense. Such a successful strategy at sea is not, as some armchair strategists would suggest, an alternative to a coalition defense of Europe. Nor does it impede a strong, improved and modernized conventional land defense of NATO. Instead, our maritime strategy complements these objectives. Its achievement is a necessary prerequisite for the success of any defense of the central front of NATO.

Similarly, in the Pacific and Indian Ocean theatres, geography and the naval and land based forces of the U.S. and its allies provide a clear strategy for success.

Since World War II, Presidents have made use of forward deployed battle groups and Marine amphibious units more than 250 times to keep the peace. Indeed, regular forward naval deployments have proven to be a most stabilizing deterrent to conflict. The Falklands offered a contrasting example. If the United Kingdom had indicated an intention to continue its regular peacetime deployments to the Falklands, it might well have avoided that tragic conflict. But peacetime deployments are not merely to show resolve or to manage crises. For the Navy and the Marine Corps they are also the best and most realistic method of enhancing training and readiness. In keeping with our new strategy, we have completely reordered our method of peacetime deployment of naval forces to add much more realistic multi-carrier battle group operations, greater flexibility for theatre commanders, and far more useful training, while at the same time reducing the ratio of time out of home port for our Navy and Marine Corps personnel. This new method of deployment, called "FLEXOPS", has resulted in multiple carrier battle group exercises in the Norwegian Sea, the Eastern Mediterranean, the Caribbean and the Aleutians.

Senator Nunn. Where and how do you intend to wage the submarine battle?

Secretary Lehman. We intend to fight the submarine battle as far away from our vital sea lanes as possible and beyond the principal choke points which the Soviet Union must use to gain access to the open ocean; primarily the G-I-N gap and the exits to the Sea of Japan, among others. The battle will be waged with the full range of ASW sensors and weapons available to the U.S. and its allies, including fixed and mobile ocean surveillance systems, CAPTOR mines, SSNs, Maritime Patrol Aircraft (MPA) and Battlegroup ASW aircraft and surface combatants. Some SSNs will carry the battle to the enemy's home waters and adjacent sea areas as necessary to engage the Soviet submarine fleet before it can disperse and threaten our battle groups and sea lanes.

Senator Nunn. Was personnel performance and training more important than hardware in determining the outcome in the Falklands?

Secretary Lehman. In general, we have found that the training, quality, and morale of the personnel involved have more to do with the outcome of battle than any materiel or technology issue. This was true in the Falklands, especially in the land battles. On the Argentine side, the garrison force was largely composed of young inexperienced conscripts. The opposing British force that defeated them was professional, seasoned, far more experienced, and all-volunteer. The results were directly related to the difference in these factors. However, the Argentine Air Force and Naval Aviators exhibited a high degree of courage and skill. They proved to be formidable adversaries. On the other hand, the importance of hardware cannot be ignored. The lack of airborne early warning and long range interceptors opened up the British force to high attrition and losses.

Another example of the effect of superior personnel performance was the success on the part of the RN in providing logistic support. The Falklands campaign was a major logistics success on the part of the RN and a failure on the part of the Argentines. The RN was faced with an 8,000 mile logistics train, and the Argentines with only 400 miles. The Argentines were never able to break the British logistics line. While the British never succeeded in completely halting the Argentine logistics line, because they were unable to establish complete air control, they did constrain Argentine resupply activities to infrequent flights. The Argentines were also unable to effect efficient distribution of the supplies they did receive. The British logistics success can probably again be related directly to the depth of their training and experience.

IN HARM'S WAY

Senator **Nunn**. Secretary Lehman, in this year's statement, you talk about the creation of a more realistic strategy for the use of U.S. Naval forces. What are the essential elements of this "more realistic strategy?"

Secretary **Lehman**. The program put before Congress 2 years ago to achieve maritime superiority included the development of a more realistic strategy for the use of Navy and Marine Corps forces to maximize deterrence in peacetime and to prevail if deterrence fails. Current naval strategy for the achievement of maritime objectives is built on three basic premises. First, the Soviet maritime threat is global. Second, the global nature of our naval force requirements derives from treaty relationships with over 40 nations, which must be met. As a result of these two premises, we cannot plan on vacating one ocean to reinforce another in a conventional war. The third premise is that the West can no longer rely on a passive defensive posture at sea. We do not have the merchant tonnage available to absorb heavy loss in a submarine war of attrition as we did in Warld War II. We must prevent enemy submarines from preying on our shipping in the Atlantic and Pacific. Control of key choke points and all territory of NATO members on the Northern and Southern flanks must compel the Soviets to divert forces to adjacent areas and prevent them from concentrating their numerical advantage against the central NATO front on land, and require a nearly full commitment of their naval forces to defensive deployments in the maritime theaters. A successful forward defense maritime strategy is an essential complement to our objectives in land battles and allied defense.

In the last 10 years, we have recognized the importance of Southwest Asia and are making progress in our Maritime Prepositioned Ship program. We are improving our posture as we progress toward our restoration of maritime superiority via a 600-ship, 15 CVBG navy and we have progressed well toward a "combined arms" approach with last year's agreement with the Air Force. That agreement will increase our combined effectiveness in warning, surveillance, targeting, command and control, minelaying, electronic warfare, and in-flight refueling.

Senator **Nunn**. Does the recent Navy-AF cooperative agreement envision more land-based tactical air assistance in the flank areas?

Secretary **Lehman**. The Navy/Air Force Memorandum of Agreement focuses on improving the capability of existing Air Force forces to contribute to maritime operations. The agreement seeks to achieve greater "total force" capability and flexibility for the operational commanders to use in operations at and from the sea. The primary means of fulfilling this objective is joint training and exercising at sea, worldwide.

Although the flank areas were not the only consideration in development of the recent agreement, the results of generally enhanced joint capability and interoperability at sea will certainly include improved assistance in these areas as well as others.

Senator **Nunn**. What are your current views on using carrier battle groups forward of the GIUK Gap?

Secretary **Lehman**. [Deleted.] As President Reagan recommissioned the U.S.S. *New Jersey,* he noted that "we must be able in time of emergency to venture into harm's way, controlling air, surface, and subsurface areas to assure access to all oceans of the world." [Deleted.]

FINAL REPORT OF GENERAL BARROW

Senator **Nunn**. General Barrow, you came before the committee to give what you termed your "final report" after 40 years in uniform, including three wars. Looking back into history and your lifetime of experience, what do you see as the major challenges facing the country and Congress in the national security field in the coming years?

General **Barrow**. Based on my experience, I would suggest three related areas for consideration as the major challenges facing our country in the coming years:

Recognition, Education, and Allocation.

The Nation's leadership, as reflected by the administration and the legislature, must recognize that we are confronted by a most serious threat—perhaps the most serious threat in our history—to our national institutions. The centerpiece of that threat must continue to be recognized as the Soviet Union; however, the instabilities and potential disruptions inherent in an emerging third world and the pressures generated by the "north-south conflict" must also be recognized.

It must be further recognized that the threat is not limited to the possibility of armed conflict. On the contrary, the entire spectrum of America's national interests is being threatened—political, economic, and commercial, as well as military.

Our democracy is committed to the preservation of other democracies throughout the globe. That commitment is manifest in the various treaties, agreements, and alliances to which we are pledged and upon which our political viability rests. If our commitments are challenged, we must recognize the need to be ready and willing and able to deter or defeat the challenge.

Economically, while we are blessed with a wealth of natural resources, we are, nonetheless, greatly dependent upon scarce and strategically critical minerals which are abundant in other nations located far from our shores. The vitality of our technologically oriented economy relys on free access to the sources of such minerals. Any obstacles to America's access and trade will necessitate action—diplomatic or, failing there, military.

And so it is with our commercial well-being. The increasing commercial interdependence between this Nation and other industrial nations of the free world requires free access to, and unfettered trade with, our commercial partners abroad. Anything less is unacceptable.

These then are the geopolitical realities which must continue to be recognized by the national leadership. And, once recognized, the leadership must then inform and educate the people of our nation.

The education of our citizens must be both objective and open to rebuttal and critique. It must be thorough and ongoing—designed to present the realities of our nation's position vis-a-vis the threat and it must provide choices regarding the allocation of national resources. Then and only then can we expect to generate a national consensus that will provide the resolve, the support and, perhaps most importantly, the willingness to sacrifice—both personally and financially—for the sake of national security.

Achieving such a national consensus, it becomes incumbent upon the national leadership to prudently, and responsibility, allocate the necessary resources. Militarily, that allocation must seek to strike a proper balance between strategic and conventional forces and current readiness and modernization. As a primary outcome, a spirit of dedication will prevail which will continue to provide the most vital resource necessary for a strong national defense—the capable and willing sons and daughters of America.

Senator NUNN. What is the highest priority problem we have to come to grips with to solve?

General BARROW. Among the myriad national security challenges facing the Nation, I would focus on what I have referred to in the past as our maritime imperatives. First, is recognition of our maritime heritgage—a heritage which must be preserved and fostered. Second, we must recognize that the geopolitical realities of our position as leader of the free world require a continuing emphasis on the national maritime strategy—a strategy that will lead to clear maritime superiority. The basis of maritime superiority does not rest solely on a strong Navy. Rather, it rests on the solid foundation of our commercial and industrial institutions—a vigorous shipbuilding industry and a thriving Merchant Marine. There is a compelling requirement to produce ships, both military and merchant, in order to support commerce, maintain freedom of the seas, provide deterrence at sea and project power from the sea should deterrence fail. Equally compelling is the need to enhance our strategic mobility and sustainability to ensure that, when our presence is required, we can respond rapidly and with credibility.

STRATEGIC CHOKE POINTS

Senator NUNN. You mention in your prepared statement the capability of amphibious forces to seize and control strategic choke points to take maximum advantage of a potential adversary's weaknesses. This week's edition of Aviation Week had an article about a possible new Marine Corps Mission for using ground-based mobile antiship cruise missiles for use in bottling up the Soviet fleet at key choke points. What can you tell us about this article and your views on this potential mission?

General BARROW. The article "Antiship Missiles Studies To Block Sea Chokepoints" in Aviation Week and Space Technology (Feb. 28, 1983) was apparently derived from the feasibility study of a ground launched anti-ship system (GLASS) being conducted by the Defense Nucler Agency (DNA). The Marine Corps neither requested nor participated in this study.

The Marine Corps has not documented a requirement for such a system, but as with all proposed concepts or equipment, we will examine the results of this feasibility study for its applicability to Marine Corps missions and requirements.

AMPHIBIOUS LIFT GOAL

Senator Nunn. You mention the DOD mid-term goal is to provide sufficient ships to simultaneously lift the assault echelons (AE) of a Marine Amphibious Force (MAF) and Marine Amphibious Brigade (MAB). Isn't this a change downwards from last year's and previous goals for lift for a full MAB and the assault elements of a MAF? Has the JCS changed their lift requirements or what does this reduction involve?

General Barrow. The Marine Corps is totally dedicated to supporting the Department of the Navy goal of a 600 ship Navy. We are aware that our Navy, regardless of size, must have an effective balance of capabilities across the full spectrum of naval warfare tasks. In this context, due to "real world" programmatic restraints on projected amphibious ship construction, we have agreed to re-size the mid-term objective from an amphibious capability to lift one MAF(AE) and one MAB to our current objective to lift the assault echelons of a MAF and a MAB in amphibious shipping.

The MAB(AE) will include all combat and combat support troops and equipment and 15 days of supply. Future planning will provide for a MAB Assault-Follow-on-Echelon (AFOE) carrying 15 DOS and combat service support troops and equipment in commercial shipping. The AFOE must arrive at the objective by D+5.

Even with the transfer of some MAB supplies and equipment to an AFOE, we have agreed that current projections of amphibious ship numbers and capability will not achieve lift for the MAF and MAB assault echelons until 1994. We are prepared to accept the increased risk associated with dividing sustainability in the MAB into two echelons and the greater difficulties inherent in off-loading commercial shipping.

CIVIL AFFAIRS

Senator Nunn. What capability does the Marine Corps have in the civil affairs area and what activities are currently being undertaken by the Marine Corps Reserve 4th Civil Affairs Group? How does this unit support the active establishment?

General Barrow. Presently the Marine Corps' sole source of expertise in civil affairs is the 4th Civil Affairs Group. The group is comprised of personnel of high intellect whose civil pursuits parallel their military duties. This Selected Marine Corps Reserve (SMCR) unit is organized with a Group Headquarters and two Civil Affairs Detachments. Two more Civil Affairs groups are destined to be activated in fiscal year 1984. these Reserve Units will fulfill the Marine Corps Total Force requirements. The capabilities of a Civil Affairs group are limited to minimum essential civil/military operations necessary for the accomplishment of the primary mission of a Marine Amphibious Force (MAF), or an independent Marine Amphibious Brigade (MAB) or subordinate MAB Components. Supervisory assistance is provided to existing or reestablished civilian authorities and institutions in matters concerning public health and welfare, legal problems, public safety, and civic action. Civil Affairs personnel will also provide liaison between U.S., indigenous and third-country organizations conducting civil operations in the beachhead area.

At present the 4th Civil Affairs Group has an element engaged in an exercise in Norway. Future exercises this year requiring their participation are Solid Shield and Gallant Knight. They will also participate in two division level Command Post Exercises (CPX) at Camp Lejeune, two Army exercises, and a Sixth Fleet exercise. In addition to their normal training these Marines give presentations at formal Marine Corps Schools and provide briefings to Marine Amphibious Units (MAU's) deploying from Camp Lejeune.

RESERVE AUGMENTATION UNIT (RAU)

Senator Nunn. What is the current status of the Marine Corps Reserve RAU program and is this being expanded?

General Barrow. Each Reserve Augmentation Unit (RAU) is comprised of Individual Mobilization Augmentees (IMAs) preassigned to critical mobilization billets, which must be filled on or shortly after Mobilization Day. Currently, 27 Operational Sponsors, both Internal and external to the Marine Corps have identified the need for 1200 IMA Billets. Since the establishment of the RAU program in October of 1981, approximately 500 IMAs have been assigned to RAUs. As Operational Sponsors further define mobilization requirements the RAU program will expand to 1500 IMA billets by fiscal year 1985. When the RAU program matures and recruiting efforts increase, qualified individuals will be found to fill the identified and anticipated IMA billet requirements. The professionalism displayed by IMAs during training and most recently a major mobilization exercise underscores the value of this program.

LAW OF WAR TRAINING

Senator **NUNN**. What type of Law of War training, if any, do marines receive in field exercises? Should this training be expanded or formalized?

General **BARROW**. The Marine Corps Law of War program is designed to teach each Marine that level of knowledge of the Law of War necessary to discharge the duties required of his rank and billet.

During field exercises, members of the Tactical Exercise Control Centers insert specific problems designed to test Marines' practical knowledge of the Law of War. Law of War problems have been inserted into field exercises controlled exclusively by the Marine Corps as well as joint exercises, such as Team Spirit 82, an exercise conducted with the Armed Forces of the Republic of Korea.

As I indicated last year, Marine Corps Judge Advocates are trained in Law of War matters at the Marine Corps sponsored Law of War Course. Graduates of this course then support their unit's training program by including Law of War problems in unit training exercises.

Presently, Law of War problems are being designed for inclusion in the Marine Corps Combat Readiness Evaluation System (MCCRES). Law of War problems would then be formally included in the readiness evaluation of every Marine Corps combat organization.

EP-3

Senator **NUNN**. What is the requirement for additional EP-3 aircraft and how essential are the capabilities of the EP-3 to the fleet commander? How would you rate the EP-3s' capabilities and value to the battle fleet as compared to other intelligence assets? How important is flexibility and a dedicated Navy resource and platform to the fleet commander? Can you provide some examples of how the EP-3 assists the fleet commander in an operational context?

Admiral **FOLEY**. [Deleted.]

LIGHTWEIGHT ARMOR VEHICLE (LAV)

Senator **NUNN**. General Barrow, what is the status of the LAV program and what are current Marine Corps procurement goals and the program acquisition unit cost?

General **BARROW**. We are very pleased with the progress of our joint effort with the U.S. Army to acquire the LAV. An intensely competitive evaluation of the four condidates concluded in May 1982. This was followed by a thorough source selection process which recommended that General Motors of Canada (GMC) be awarded the production contract for their eight-wheeled vehicle; a derivative of the Swiss manufactured MOWAG Piranha. On 27 September 1982 a five year, fixed-price, with economic price adjustment contract was awarded to GMC for the production of 969 LAV(25)s of which 289 are for the Marine Corps. Within the terms of this contract are the options to procure the remaining LAV mission role vehicles, following a Marine Corps procurement decision. The air defense and assault gun vehicles, due to technical and affordability consideration, have been deferred until the fiscal year 1987-1989 time frame. Like the LAV(25), each mission role vehicle will be evaluated to verify that it provides us the most cost and operationally effective solution to our stated need. To this end a companion cost-plus-fixed-fee contract was given to GMC to deliver two prototypes of each of the antitank, mortar, logistics, recovery, and command LAVs. To date everything surrounding this accelerated acquisition effort is on track. We are confident that the future milestones will be achieved. Our goal remains the procurement of 744 LAVs to form our programed LAV organizations. The current contract provides the means to procure 586 of the 744, leaving the remaining 158 for a follow-on contract. Our currrent estimated average program acquisition unit cost for all 744 LAVs is $730,000 in constant FY 1982 dollars. This is the baseline estimate contained in the Marine Corps' initial Selected Acquisition Report (SAR) for this program.

Senator **NUNN**. How will these vehicles be integrated into Marine Corps force structure and what doctrinal changes are being contemplated, if any?

General **BARROW**. We will commence introduction of LAV organizations with the Initial Operational Capability (IOC) unit (company sized) at 29 Palms, California. This unit will have its requisite vehicles, equipment, and personnel by February 1984 which is our projected IOC date. Ultimately we plan to have a battalion of LAVs (145 vehicles) at Camp Lejeune, North Carolina; a battalion (less one company—38 vehicles) at 29 Palms and Camp Pendleton, California; and a reinforced company (38 vehicles) at 29 Palms, California, and Okinawa, Japan. The introduction of the LAVs into the Marine Corps is not intended to change our doctrinal concepts. Instead, the LAV will enhance the tactical options and flexibility of the commander due to its survivability, firepower and high degree of mobility.

NAVAL GUNFIRE SUPPORT

Senator NUNN. What is your view on the current Naval gunfire situation needed to support amphibious landings and how essential is that support to landings in hostile environments? What is needed to correct this situations?

General BARROW. Naval Gunfire (NGF) support (or Naval Surface Fire Support (NSFS), which includes missiles and rocket fire) is essential for the successful conduct of an amphibious assault in a hostile environment. NSFS provides the only rapidly responsive, close and continuous all-weather (day and night) fire support during the first twenty-four hours until landing force artillery is established ashore. The effectiveness of aviation elements assigned to the direct air support mission is affected by weather, darkness and the enemy air defense capability. Clearly, NSFS and landing force artillery, once firmly established ashore, are essential elements of guaranteed, responsive fire support.

The current NSFS inventory is inadequate to support Marine Corps requirements. First, the quantity of Naval guns in the fleet has declined over 50 percent in the past decade. Even with the recent commissioning of USS (*New Jersey,*) the number of platforms available to deliver fire support is deficient in view of competing requirements for these ships (e.g., anti-air and anti-submarine roles, CVBG screening, etc.). Second, the range of the current 5"/54 and 5"/38 gun families is too short to isolate the beachhead from Warsaw Pact artillery. Third, the accuracy of th five-inch gun family is insufficient against mobile armored forces and hardened point targets. Finally, the lethality of the five-inch gun family is inadequate against these same targets.

The following actions are recommended to improve NSFS in the near term:

Continue funding for the five-inch guided projectile necessary for improved accuracy.

Reactivate all four Iowa class battleships to improve the range and lethality of the NSFS inventory.

In the long-term, the following actions are recommended:

Development of the 155mm Vertical Load Gun to improve range capability and provide an expanded family of munitions.

Development of the demonstrated technology to field an even more lethal 16 inch ammunition.

Construction or conversion of a ship with the primary purpose of fire support.

HELLFIRE FOR THE MARINES

Senator NUNN. What is the MC exploring in terms of using the Hellfire missile system and what applications do you see for this system?

General BARROW. The Marine Corps is in the second year of a development program to incorporate Hellfire on its AH-1J and AH-1T aircraft in both its active and reserve forces. This effort includes some minor marinization tasks on the missile to make it shipboard compatible and development of aircraft mods. It is also being considered for the OV-10 aircraft. Since Hellfire has completed development under Army lead, the cost to field it for the Marines is very low in comparison to single service programs. Hellfire is expected to siginficantly enhance our anti-armor capability on low speed aircraft and combined with the TOW, plus the Laser Maverick being fielded in our jet aircraft, we will have a capable and well rounded anti-armor punch.

ATTACK HELICOPTERS FOR THE MARINE RESERVES

Senator NUNN. What is the requirement for modernizing the Marine Corps Reserve attack helicopter assets?

General BARROW. Modernizing the Marine Corps reserve attack helicopter forces through incorporated improvements in capability and the fielding of additional assets represents a critical requirement. Required capability improvements include an improved anti-armor munition to counter an ever growing armor threat, a defensive air-to-air weapon to engage enemy HIND and fixed wing aggressors, and a survivability suite to thwart enemy radars and IR seekers. These enhancements are all underway with our Hellfire, Sidewinder, ECM, and Sidearm modifications. Our unanswered deficiency, then, becomes available assets. The Marines currently have a serious shortfall in both active and reserve attack helicopter forces.

Senator NUNN. What is the current need to upgrade the AH-1s and when is this planned?

General BARROW. Our plan to progress from the current eight aircraft detachment to fulfillment of this requirement involves two stages. The first stage includes procurement of 44 AH-1T aircraft beginning with our $17.8 million advance procurement request in fiscal year 1984. This buy will flesh out our two active force AH-1T squadrons which are now below authorized levels, and will convert our one active force AH-1J squadron to the AH-1T, permitting transfer of the AH-1J's to fill out our present Reserve squadron. The second stage would involve adding three Active and one Reserve squadron to the force. Funding for this second stage will be an issue in our formulation of future budget requests.

Senator NUNN. Should this be accelerated if appropriate resources were available?

General BARROW. This procurement could indeed be accelerated if funds are available. It was originally planned to begin one year earlier and advance procurement funds were contained in the 1983 budget request to the Congress. This is a very heavily committed community which performs vital tasks for the Marine Air-Ground team. Any feasible acceleration would contribute greatly to our ability to counter the projected threat of the modern day battlefield.

MANPOWER PLANNING

Senator NUNN. General Barrow, as the former Deputy Chief of Staff for Manpower, you are familiar with the intricacies of manpower management. What is the status of Marine Corps efforts to develop computer models to help with manpower and personnel management? How do you rate the Marine Corps in relation to other services in the sophistication of your models and approach?

General BARROW. The development of Manpower models in the Marine Corps has been extensive and we are satisfied with our progress. Our models are used in all areas of manpower planning and manpower management. We presently have more than 14 major and many other smaller models in operation with some additional models being developed. We are especially proud of our assignment models. With them our unit deployment program is on schedule, i.e., all infantry battalions and all operational squadrons are in the program. Additionally, our model efforts have allowed for: long range development of the Manpower requirements at the grade and skill level, planning and developing the inventory, and the planned assignment of the entire first term force over a five year horizon. Informal contact with Department of Defense and other Service personnel indicate that the models currently being used by the Marine Corps and those under development are comparable to those used by the other Services.

PROMOTION TO MAJOR

Senator NUNN. You mention the Marine Corps plan to request an adjustment to the DOPMA grade table for more majors. I recall detailed discussions when we passed this complex legislation on this subject and the Congress provided the Marine Corps with a proportionate percentage higher than other services. What is the requirement for additional numbers and what would the impact be of a longer time in grade as opposed to more field grade officers? What is the cost of this proposal?

General BARROW. The current field grade table in law authorizes the Marine Corps to have an average of 16.6 percent of its officer corps in the grade of major. This figure is the lowest of the four services. As a result of the present ceiling set for the grade of major, the Marine Corps will be able to man only 83.5 percent of its programed structure requirement for the grade of major in fiscal year 1984 and the outyears. Although the requested increase will still not permit us to fill all of the billet requirements for this grade, it will allow the Marine Corps to remain within the Defense Officer Personnel Management Act (DOPMA) promotion timing guideline (10 year ±1) established for this grade by the Congress. Our request for additional majors is primarily predicated on the promotion timing for this grade exceeding the maximum congressional guideline of 11 years while remaining at the minimum opportunity guideline of 80 percent. The effect of permitting the promotion timing to increase as opposed to increasing the number of majors would be to deny the Marine Corps the ability to man a number of important billets at the required grade. In addition, allowing the promotion flow for majors to move above the Defense Officer Personnel Management Act promotion window and remain there, would have the effect of reducing career expectations for the due course officer. This reduction in career progression would be counter to the desires of the Congress relative to providing consistent career expectation within and between the officer corps of each service. The Marine Corps would implement the proposed increase of 500 majors over a five year period beginning in fiscal year 1985. The projected additional costs are as follows:

Fiscal year:	
1985	$1,328,000
1986	1,930,000
1987	2,651,000
1988	2,956,000
1989	2,956,000

LAW OF WAR, RESERVE SUPPORT

Senator **Nunn**. What is your impression of how the Marine Corps Reserve establishment has supported the Marine Corps Law of War training program and do you intend to continue this arrangement? What type of expertise is provided that is not available in the active establishment and does this point out a strength of Reserve-Active relationships?

General **Barrow**. The Marine Corps Reserve establishment has responded enthusiastically and effectively to the request by the regular establishment for assistance in the development and improvement of the Marine Corps Law of War program. There has been a close and professional working relationship between Deputy Chief of Staff for Training, Director of Judge Advocate Division, Deputy Chief of Staff for Reserve Affairs, and those reserve units responsible for the implementation of the Marine Corps Law of War program. That program is considered to be dynamic, rather than static, undergoing continuous revision, and the Reserve establishment has already supported the idea of its continuing improvement.

The expertise of the Reseve establishment has enhanced and will continue to augment that of the active force. The Marine Corps has a program by which a select number of active duty judge advocates are allowed to obtain their Master of Laws Degree in international law to enable them to provide timely advice to major operational commands on the vast number of international law issues raised in daily contingency planning. The Reserve Augmentation Unit responsibile for Law of War instruction contains members with extensive experience in international law who, in their civilian employment provide day to day advice on operational issues to the Armed Forces; have served their respective agencies on U.S. delegations to international conferences and negotiations; and are widely published on international law and law of war in professional journals. This expertise has been utilized to supplement that available in the active force, and is an excellent example of the strength of the Marine Corps Reserve-Active relationship.

LAW OF WAR TRAINING

Senator **Nunn**. What is the status of the Marine Corps Law of War training program and how are Marine Reservists providing direct support to active forces in training?

General **Barrow**. The Marine Corps Law of War program's growth and expansion is continuing through the dynamic efforts of our Reserves.

The mobilization training unit, under the guidance and operational control of the Deputy Chief of Staff for Training, which is responsible for the Law of War instruction, has recently been redesignated a reserve augmentation unit and now fills designated billets in the Headquarters Marine Corps mobilization table of organization.

In the past year, they have lectured at both the Army and Navy War Colleges, the Marine Corps Command and Staff College, the Armed Forces Staff College, Amphibious Warfare School, Advanced Communication Officer School, the Armed Forces Air Intelligence Training Center (Senior Officer Targeting Course) and at the Staff Non-Commissioned Officers' Academy at Quantico, Virginia.

We are currently investigating the feasibility of moving one of the courses in Law of War taught at the Naval Education and Training Center in Newport, Rhode Island, to another east coast area and one to a west coast site. We envision this relocation would allow a more equitable spread of Judge Advocates and line officers among course attendees.

The role of the newly established Reserve Augmentation Unit has been active in the past year and the expertise they provide has been invaluable in the training of today's marines.

Questions Submitted by Senator Carl Levin

PAY INCREASE

Senator Levin. Admiral Walkins, would you be willing to make any cuts in the Navy budget to fund some type of pay increase for military personnel in fiscal year 1984? If so, in which areas of the budget and what dollar amounts?

Admiral Watkins. We are, of course, concerned about the possible effects on retention and morale that may be caused by the proposed pay freeze for military personnel. Yet we recognize the rationale for this freeze and support the administration's cost-cutting efforts.

Senator Levin. Secretary Lehman, would you be willing to make any cuts in the Navy budget to fund some type of pay increase for military personnel in fiscal year 1984? If so, in which areas of the budget and what dollar amounts?

Secretary Lehman. The fiscal year 1984 budget is a carefully considered document which required difficult decisions in regard to end strength, force structure, and procurement. The final budget submitted represents an optimum balance between readiness, sustainability, and modernization within funding available to the Department of the Navy. A pay raise could not be absorbed without adverse impact on the balance attained in the budget, and on operational readiness, sustainability, and modernization.

As you are aware, the pay freeze is one of the important increments of the President's budget and his economic recovery program. While a pay raise is desirable, I support retaining the funding for programs now budgeted, consistent with the President's Budget submission.

Questions Submitted by Senator Howard M. Metzenbaum

COMPETITIVE PROCUREMENT

Senator Metzenbaum. In 1981, when Under Secretary Carlucci asked each service and the DLA to establish a 1982 target for competitive procurement, your department set a competition goal of 28.4 percent. As the following chart indicates, however, Navy competitive procurements ran at only 18.2 percent for the first half of 1982.

Competition goals for 1982—in percent

Army	14.1
Navy	28.4
Air Force	35.0
DLA	82.4

Extent of competition reported by DOD in 1982—first half—in percent

Army	14.1
Navy	18.2
Air Force	35.6
DLA	75.2

For what reasons did the Navy fall so far short of its goal? What, if anything, has been done in the interim to enhance the use of competition?

Secretary Lehman. Since the 28.4 percent figure you cited was our annual goal and the Navy actually achieved 26.7 percent competitive awards for fiscal year 1982, we did not fall "so far short" of our goal. Your earlier statistics for the first half of fiscal year 1982 were undoubtedly influenced by the fact that competition statistics are historically lower during the early part of the fiscal year and, therefore, any comparison made between achievements during the first half of a fiscal year and a goal for an entire fiscal year will likely be erroneous. It simply takes time to initiate and execute a competitive contract. Additionally, another 30.4 percent of our fiscal year 1982 dollars were awarded as follow-on contracts to price or design competitions conducted in earlier budget years.

It should also be remembered that fiscal year 1982 represented the first full fiscal year in which the current administration was in office. It is useful, therefore, to look at our progress to date in increasing competitive procurements. For example, in fiscal year 1981 approximately 27 percent of our shipbuilding contracts (on a dollar basis) were awarded competitively. In the fiscal year 1984 shipbuilding program almost 60 percent will be awarded competitively.

Navy has also stressed increased vendor competition within prime contracts. In the F-18 program competition for test sets has resulted in savings in excess of $150 million. In many other aircraft programs similar projects are being developed to maximize vendor competition under Navy direction.

Action to expand second source production has been undertaken so that competition will exist through the production phase. This has been implemented on air to air missiles and proposed to OSD as a method to save $800 million in the production of HARM missiles.

Throughout the Navy we are pressing for more competitive procurement based on structuring programs to promote competition at the beginning.

We are seeing results. The dollar volume of competitive procurement in fiscal year 1983 is running substantially ahead of 1982; $4.21 billion has been awarded competitively in the first half of the year compared to $2.63 for the same period last year. Notwithstanding the large dollar non-competitive award of the two CVN's, the percentage of dollars awarded competitively is also ahead of the 1982 pace; 21.4 percent in fiscal year 1983 compared to 18.2 percent in fiscal year 1982.

In addition to improving the direct competition which is reflected in the procurement data, Navy has structured programs to increase the degree of perceived competition. For example, the F-18 is not a competitive program viewed alone. But when taken in context of a carrier load the mix of aircraft can be changed. Thus competition between the F-18 and A-6/F-14 evolves regarding the size of the production runs. We have used this environment even though the procurement statistics do not reflect that. This action has moved about $2.1 billion into a competitive environment, or about 5 percent of Navy procurement.

As a member of the DOD's Acquisition Improvement Steering Group, the Navy has been responsible for the following initiatives to enhance the use of competition:

1. Comprehensive review as to whether additional guidance is required for competition based on factors other than price.

2. Initiated action on a modified Defense Acquisition Regulation (DAR) Case (79-42) intended to amplify current DAR procurement planning coverage by encouraging expanded use of various techniques to achieve multiple competitive sources. In conjunction with this, the Navy took the lead on proposed legislation to provide the statutory negotiation authority to use such techniques as joint teaming, co-production, and the leader-follower concept.

Individually, the Chief of Naval Material, being the focal point within the Navy for increasing competition, has ensured that this initiative has remained a "front burner" issue Navy-wide. Memoranda have been written, NAVMAT Board of Directors meetings have addressed the issue, and high level speeches have been delivered using this initiative as their theme. In addition, CNM and ASN(S&L) hosted a meeting of Competition Advocates in Washington on December 10, 1982.

The budget is composed of a large number of individual programs each of which develops its estimate of costs based on assumption about the defense market, business base, and the acquisition strategy including the type of contract and opportunities to make use of or to establish competitive market conditions. Competition is seen as the most significant factor in promoting efficiency in defense procurement. The budget is based on the goal of exploiting this factor at every opportunity; savings are implicit in the individual program cost estimates. For program procurements where there are a number of producers and a firm specification, "winner take all" competition is the standard. For major weapon systems, vendor/subcontrator competition is required and second sourcing strategies are developed. We intend to continue to vigorously pursue the maximal use of competitive factors; budgets are and will continue to be based on cost estimates that explicitly incorporate the use of these factors.

Senator **Metzenbaum**. On March 8, 1982, Donald J. Horan, Director of the Procurement Logistics and Readiness Division of the GAO, pointed out in a letter to Secretary Weinberger that DOD procurement statistics had been "revised to include certain highly competitive non-military awards and to exclude certain non-competitive military awards. "In our opinion," Mr. Horan wrote, "DOD's presentation of, and changes to, its statistics could decrease the credibility of the statistics and could even lead to a real decline in competition."

To what extent have the Navy's methods of classifying procurements as competitive or non-competitive changed during your term in office? Please specify your changes, if any, from the practice of preceding administrations in determining what is and what is not competitive. Please specify also the percentage of Navy procurement dollars expended in each of the past three years via competitive sealed bidding.

Secretary LEHMAN. The classification of procurements as copmpetitive or noncompetitive is a determination made by the Office of the Secretary of Defense (OSD). The Navy's methods of classifying procurements has remained consistent with OSD guidance. The percent of Navy procurement dollars expended via competitive sealed bid in each of the past three years is as follows:

Fiscal year:	*Percent*
1980	5.4
1981	5.0
1982	3.4

This reflects the continuing transfer of consumables and common spare parts susceptible to the bid process to the Defense Logistic Agency.

BUILD, CONVERT AND CHARTER PROGRAMS

Senator METZENBAUM. In your testimony today, you stated with regard to the build/convert and charter programs that:

"Studies have shown that in terms of present value, we will save over $35 million per ship by chartering rather than purchasing. After accounting for tax aspects, the savings to the Treasury will still be over $28 million per ship."

The Joint Tax Committee has criticized the Navy's cost studies of this program on methodological grounds and has come to very different conclusions about program cost. According to the Committee, leasing the ships will cost a total of $270 million more than buying them. In addition, the Committee estimates that this program will create a tax expenditure per ship of $210 million, a figure substantially in excess of the $184 million purchase cost.

In view of the committee's conclusion, does the Navy still intend to proceed with this program? If so, on what grounds does the Navy justify these additional expenditures? Do you intend to lease additional planes or ships?

Secretary LEHMAN. The Navy has now had an opportunity to study the Joint Committee on Taxation Report of February 25, 1983 (JCT Report) and believes that the conclusions are erroneous due to the use of improper methodologies and assumptions. The basic problem with the JCT Report is that its pre-tax methodology did not consider all the tax inflows to the Treasury as a result of the charter arrangement. The JCT Report also assumed that if the Government purchased the ships it would not pay cash but actually finance 100 percent of the purchase with the sale of Treasury bonds.

The Argent Report of August 1982, which assumed a cash purchase by the Government and compared that with the total cost of chartering on an after tax basis, does consider all tax inflows as well as all tax outflows. The Navy believes that this more complete methodology is more accurate than that employed in the JCT Report.

Since the Navy believes that in the case of the TAKX program, chartering is less expensive than a direct purchase and there are in addition, a great many other monetary, policy and operational benefits to chartering there is absolutely no doubt that the program will proceed.

Senator METZENBAUM. In addition, I am disturbed by provisions of the contracts awarded under this program which provide for the potential payment by the Navy of legal fees and tax obligations incurred by the contractors. Please explain to me your rationale for providing to the contractors these very unusual guarantees.

Secretary LEHMAN. The tax indemnity or adjustment provisions in the TAKX are actually less onerous than those customarily utilized in commercial time charters. The Navy only protects the owner for loss of tax benefits due essentially to acts of the Navy, i.e., (1) time charter being a lease rather than a service contract, (2) the Navy's breach of contractual or legal obligations or (3) the Navy making a permanent addition to the ship. Since the Navy has received lower charter hire rates in expectation that the tax benefits are available, it's only fair that the Navy should protect the owner in the event the benefits are lost for causes that are the Navy's responsibility. It is noted that any such payments by the Navy would merely go from the Navy to the Treasury so it would essentially be a wash for the Government.

The Navy does not pay anything to the owner if tax benefits are lost for any reasons other than the three mentioned. Nor does the Navy pay any legal fees of the owner unless the Navy requests that the owner take some contest action with the IRS. It is inconceivable that the Navy would make such a request unless it's necessary to clarify the cause and extent of a tax recapture.

Senator **METZENBAUM**. Finally, I ask that you outline for me your justification for a program which, in effect, converts operations and maintenance into a procurement account.

Secretary **LEHMAN**. The Navy is not procuring ships but is obtaining a total transportation service. The primary obligation of the contractor is to ensure that the Marine Corps equipment is safely stored at sea and delivered when and where needed. The cost of the at-sea positioning of the Marines' equipment and its prompt delivery where needed is properly funded out of operation and maintenance accounts, as is the current NTPS program.

DOD DIRECTIVE 5000.2

Senator **METZENBAUM**. The February 1983 issue of Armed Forces Journal International award a "dart" to the Navy's Director of Research, Development, Test and Evaluation for holding up final action on the condification of DOD draft directive 5000.2.

Given the strong support of DOD draft directive 5000.2 for the Carlucci initiatives, please inform me as to why the Navy has held up issuance of this directive.

Secretary **LEHMAN**. The March 1983 issue of Armed Forces International Journal, corrected the erroneous comments on Navy delay contained in the February issue.

In the March issue, the Journal's Editor, Mr. Benjamin F. Schemmer, stated: ". . . an errant Journal Dart which, we now find, incorrectly targeted Navy VADM Robert Monroe last month as the culprit responsible for "not coordinating on"—and thus holding up—the draft DOD directive institutionalizing Carlucci's reforms. Monroe, we noted, has been prodding Weinberger's staff to get the directive formally issued—but we did not know that the drafts which he has declined to "coorindate on" would have complicated many of the procedures Carlucci's initiatives were designed to simplify. . . . Worse than their length, the drafts appeared to increase the briefingss, data requirements, paperwork, red tape, and number of OSD staff reviews that inundate Service program managers but which Carlucci's initiatives were supposed to reduce. . . . Service officials referred to the DOD drafts as a "Gothic horror story" and a "setback from which the acquisition initiatives would never recover. . . . Finally, last October 20th, DOD sent out a new draft on its own, reduced to 17 pages (plus 11 pages showing the format of a conditional document, rather than a mandatory one, which the Services would forward on some major OSD program reviews). Monroe urged that Carlucci issue it without change. . . ."

Senator, the Navy—and our Director of Research, Development, Test and Evaluation—have been leading the attempts to streamline the acquisition process for the past two years.

It is my understanding that the Journal's Editor himself has advised your office in writing that his February "dart" at the Navy was quite incorrect.

F/A-18

Senator **METZENBAUM**. In January of this year, the House Appropriations Committee reported on "manipulations" and "mismanagement" designed to hide "substantial" cost overruns in the F-18 program. According to the committee, the Navy, diverted funds earmarked for equipment to construction of the aircraft itself. The committee also suggested that this practice has resulted in purchase by the Navy of F-18's that do not have the kind of ECM and missile systems that our pilots would require in combat.

I would appreciate your commenting on these allegations, particularly on the question of whether or not the Navy has, in fact, procured aircraft that lack what the committee called "essential combat equipment."

Secretary **LEHMAN**. The F/A-18 program was recently subject to intensive DSARC review. As a result, the Secretary of Defense has certified that the F/A-18 aircraft is fully mission capable for the strike-fighter role. The Navy's policy is to procure only aircraft that are fully capable of performing the mission for which they were intended. All production F/A-18's received to date by the Navy are fully mission capable, except for those with specialized test or training roles. In addition, all F/A-18's currently under contract will be fully mission capable when delivered. As new technology and new F/A-18 combat related systems become operational, most will be incorporated into the aircraft in its present configuration. All proposed improvements will be examined on a case to case basis to determine whether they are cost effective. With regard to the allegations mentioned, the Navy is currently analyzing the report and a full response will be forwarded to the House Appropriations Committee.

Chairman Tower. I want to thank you, Mr. Secretary, Admiral Watkins, General Barrow, Admiral Foley, for providing us, I think with some enormously useful testimony today. I think you have built a good record here.

I particularly want to say to Bob Barrow that he will be sorely missed. I think that nobody who has testified before this committee in the last few years has testified with more candor and less inhibition than General Barrow and I think we are better informed as a result. We owe you a debt of gratitude aside from the debt we owe you for the enormous service you have been to your country.

Mr. Secretary, again thank you. We will be hearing from you more when we get into the subcommittee process, as we get into the business of the budget.

It is my own personal belief that if any reductions are forced upon us that it is not your responsibility to respond as to where these reductions will come, but in fact, there should be some guidance from the administration and the Congress as to what of our commitments we are going to relegate to low priority, what roles and missions we believe can be reduced or degraded or abandoned altogether, recognizing that you are the implementers of policy, not the makers of policy and that policy is determined elsewhere, recognizing it is the function of the military to provide not only for the national security, but to defend our vital interests abroad and to support our foreign policy objectives.

I think the Nation would pay a very heavy price indeed if we made reductions that cut into the bone and sinew of your capability to fulfill your mission.

Are there any further questions?

The hearing is adjourned.

[Whereupon, at 12:55 p.m., the committee adjourned, subject to the call of the Chair.]

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